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R10-MB-131

April 1991



# Crystal Mountain Communication Site Designation

## Draft Environmental Impact Statement

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### Alaska Region, Stikine Area





Draft Environmental Impact Statement

# Crystal Mountain Communication Site Designation

USDA Forest Service  
Tongass National Forest  
Stikine Area  
April 1991

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**Comments Must Be Received:**

*Within 45 days of the date of publication of the Draft EIS in the Federal Register. Mail all comments to Mark Hummel.*

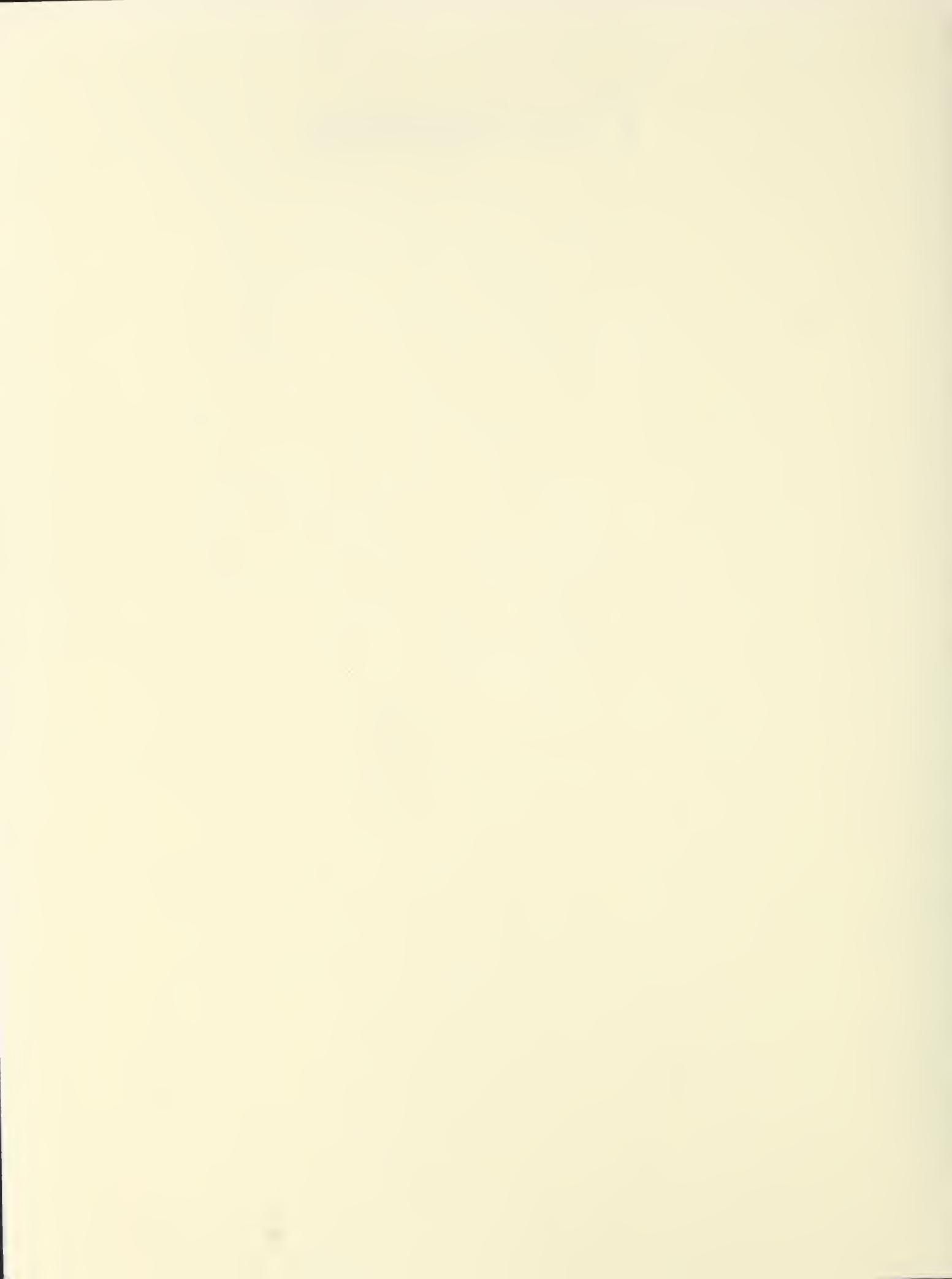
**Abstract:** This Draft Environmental Impact Statement describes the impact of designating or not designating Crystal Mountain as a communication site. Special considerations include the context of 16 sites that are already designated as communication sites on the Stikine Area, and compatibility of designation with recreation use on Crystal Mountain

**Key Words:** Communication site, communication site analysis, compatibility, Crystal Mountain, designation, recreation.





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# **Summary**



# Summary

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"Designation of a communication site is a long term management decision. The decision should consider future needs of the Forest and the public, and the management direction for associated lands. Once improvements are in place, changing the management direction becomes difficult."

Forest Service Manual 2720, ID 90-3

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## Introduction

### Communication Proposal

The Stikine Area of the Tongass National Forest has received a proposal from Crystal Mountain Communications to develop a communication site on Crystal Mountain. The purpose of the proposed development is to provide communication between Petersburg and Wrangell at low power, such as with handheld radios and cellular phones, and to provide as much additional coverage as possible of rural and marine areas on the Stikine Area and beyond.

Electronic facilities can be permitted only on sites that have been designated as communication sites in the Tongass Land Management Plan (Forest Plan) and Crystal Mountain has not been designated. As a result, consideration of the application requires two analyses, one to consider designating Crystal Mountain as a communication site, and then if Crystal is designated, another analysis to consider authorizing a special use permit (SUP) for construction and operation of a facility.

### 1990 Decision & Remand

Crystal Mountain was designated as a communication site during June 1990 but the decision was appealed to the Chief of the Forest Service in July. In October 1990 the Chief's office remanded the designation decision for further analysis of the need for designation of Crystal in light of already existing sites, and for additional analysis on compatibility of designation with recreation use.

### Area-wide Analysis

In the Winter of 1991 the Stikine Area conducted an Area-wide Communication Site Analysis.

#### Communication Needs Survey

The Forest Service conducted a mail survey of communication needs in the next 10 to 15 years. The survey results demonstrated a desire for services that can be provided from Crystal Mountain.

## Summary

### Communication Site Analysis

The Forest Service ordered a set of maps from the National Telecommunications Information Agency (NTIA) that show the low power coverage (including handheld radios and cellular phones) and the high power coverage (including units powered by trucks, commercial boats, and AC power in the home). The set of maps includes one overlay for each of 16 existing sites that are already designated in addition to other sites that are not designated.

The maps show that much of the area that could be covered from Crystal Mountain is already covered by existing sites, but each existing site only covers a portion of Crystal's range. Currently people can communicate *within* each of the sub-areas, but not *between* areas. The Crystal site would allow communication between sub-areas at low power levels, most notably between Petersburg and Wrangell. It is this ability to tie together various areas that makes Crystal Mountain a powerful communication site.

The maps also show that Crystal Mountain is the only single site that can be reached with the use of low power units from Petersburg and Wrangell. Sumner Mountain provided the coverage closest to that of Crystal. The combination of Lindenberg and Zarembo Mountains, both already designated, could provide services similar to Crystal.

## Alternatives Considered in Detail

### Alternative 1

Alternative 1 is the proposed action. It would designate Crystal Mountain as a communication site. The applicant could then apply for a special use permit to construct and operate communication facilities on Crystal Mountain.

### Alternative 2

Alternative 2 is the no-action alternative. No site would be designated and management on Crystal Mountain would continue without new communication facilities. This EIS describes two variations on the no-action alternative.

#### Alternative 2A: Sumner Mountain

No action on the Crystal Mountain designation because Sumner Mountain could provide services similar to Crystal but without the conflict with recreation users on Crystal. (Sumner Mountain is not a designated communication site.)

#### Alternative 2B: Lindenberg/Zarembo Combination

No action on the Crystal Mountain designation because the combination of Lindenberg/Zarembo would provide services similar to Crystal but without the conflict with recreation users on Crystal. (Lindenberg and Zarembo Peaks are both designated as communication sites.)

## Consequences

### Direct Effects

Communication site designation is an amendment to the Forest Plan that allows communication uses to be considered. It does not permit any communication facilities. There are no direct effects to Crystal Mountain as a result of designating or not designating the summit. The only direct effect of designation would be a notation in the Forest Plan.

## **Indirect Effects**

Indirect effects do not include site specific details such as the size of a structure or number of antennas. If Crystal Mountain were designated, site specific effects would be addressed in a separate site development analysis. Indirect effects include the effects likely to occur as a result of designating or not designating Crystal Mountain. Indirect effects include those anticipated in the eventual development or lack of development on the site.

### **Meeting Communication Needs**

Alternative 1 would fully meet the communication needs described. Alternative 2A would provide no services, but displays those services that could be provided from Sumner Mountain. Sumner could not provide low power communication with Petersburg, resulting in a loss of the proposed service to connect Petersburg and Wrangell at low power levels. Alternative 2B would provide no services, but displays those services that could be provided from Lindenberg/Zarembo. Lindenberg/Zarembo could cover all the critical coverage proposed on Crystal, including greater area and a smaller population; however, the coverage from a double site would not be as reliable as from a single site.

### **Compatibility with Recreation Use**

Alternative 1 would allow recreation access and development of trail, as planned. It would change the nature of the recreation experience when approaching and arriving on the summit. This change would bother some people and would not bother others. Alternatives 2A and 2B would have no effect on compatibility with recreation on Crystal Mountain.

### **Visual Resource**

With Alternative 1, hikers approaching the summit would see a shelter and antennas before seeing the summit. A communication facility will dominate the foreground view. Alternatives 2A and 2B would have no effect on the visual resource on Crystal Mountain.

### **Impact on Natural Resources**

Alternative 1 could result in the use of rock bolts to anchor a structure and antennas. A structure could cover 100 square feet of alpine vegetation, and could cover a small pond. No effects are anticipated on wildlife.

### **Cost to Communication Users**

The cost to communication users was estimated for a hypothetical service based on the cost to develop each site. The hypothetical service would cost \$320 in Alternative 1, \$350 in Alternative 2A, and \$810 in Alternative 2B.

## **Cumulative Effects**

With Alternative 1, reasonably foreseeable development includes expanded structures; use of diesel generators and fuel tanks or a buried powerline; vandalism could lead the facility manager to request a fence around facility; and the development of a recreation trail with increased recreation use of Crystal Mountain. With Alternatives 2A and 2B, reasonably foreseeable development on Crystal Mountain includes the development of a recreation trail with increased recreation use of Crystal Mountain.

## **Summary**

### **Alternative 1**

The cumulative effects of Alternative 1 include:

- Expansion of communication services
- Presence of diesel would add more bulk, sound, and smell; presence of buried powerline would remove effect of propane tanks; a trail would make access easier, resulting in increase in recreation use and a less solitary experience
- Presence of diesel would add more bulk to appearance while presence of buried powerline would remove the bulk of propane tanks
- Diesel power would require containment structures to prevent fuel spill from seeping into ground
- Increased development would mean increased services at competitive rates

### **Alternatives 2A & 2B**

The cumulative effects of Alternatives 2A and 2B include:

- Leaving many communication needs unmet
- A trail would make access easier, resulting in increase in recreation use and a less solitary experience
- The visual resource would not change on Crystal Mountain
- No effects anticipated on natural resources
- Since neither Alternative 2A nor 2B would meet the needs of the applicant in an economical way, it is unlikely that either alternative would be developed. As a result there would be no service and no cost to users.

## **Identification of the Forest Service Preferred Alternative**

The alternative preferred by the Forest Service is Alternative 1, to designate Crystal Mountain as a communication site. Crystal Mountain could provide line-of-sight communication to Petersburg and Wrangell; low power coverage of much of the rural areas and waterways on the Stikine Area; and high power coverage of 6750 square miles and a population of 7000 people.

Neither of the sites examined as no-action options could provide the coverage or reliability possible on Crystal. Sumner cannot cover Petersburg at low power levels, which could mean a loss of up to half the proposed service. The combination of Lindenberg/Zaremba is less reliable than Crystal Mountain and so much more costly it is doubtful that services would ever be offered.

# **Chapter 1**

## **Purpose and Need**



# Chapter 1

## Purpose and Need

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"When communication sites are not designated in the Forest Plan, the Forest Supervisor shall prepare a NEPA analysis of the site(s) for Regional Forester approval. Considerations should include relationship to other sites."

Forest Service Manual 2720, ID 90-3

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### Introduction

#### Purpose of the Proposed Development

The Stikine Area has received a proposal from Crystal Mountain Communications to develop a communication site on Crystal Mountain, located on the southwest portion of Mitkof Island. The purpose of the proposed development is to provide communication services that are desired (see "Communication Needs Survey" on page 9) but not currently available on portions of the Stikine Area of the Tongass National Forest. (See page 2-8 for the location of Crystal Mountain on the Stikine Area.)

#### Rural Economic Development

The rural economy has not kept pace with national economic growth, yet rural people, land, and natural resource industries are important to the Nation's economic competitiveness. The Forest Service supports a new Presidential initiative on rural economic development with its own "Strategic Plan for the 90's: Working Together for Rural America." In Congress, current legislative proposals focus on several aspects of rural development considered to be critical at this time, including telecommunications and other rural infrastructure needs. The Forest Service policy is to provide leadership in working with rural people and communities on developing natural resource-based opportunities and enterprises that contribute to the economic and social vitality of rural communities.

At the same time, the Forest Service must be creative in applying the multiple-use concept in a way that improves the balance among natural resources and resource users. Crystal Mountain would be a good communication site for one of the same reasons recreationists enjoy climbing it and enjoying its views: it is the tallest mountain in the vicinity and the view from the top is spectacular.

## **1 Purpose and Need**

### **National Recreation Strategy & America's Great Outdoors**

More people recreate on the National Forests than anywhere else, and the Forest Service recognizes the importance of the great outdoors in its long-term strategy for managing natural resources. In 1988 the Forest Service developed its National Recreation Strategy to emphasize recreation. And in 1991, President Bush is proposing his America's Great Outdoors plan to accelerate efforts to meet recreation needs. Crystal Mountain provides just the kind of semi-primitive recreation experience many people seek. It's an area with opportunity to feel solitude, risk, and challenge. The setting is mostly natural and has few alterations. Crystal Mountain is part of the Blind Slough and Crystal Mountain complex that has been proposed for designation as a Recreation Special Area in the preferred alternative of the Tongass Land Management Plan Revision.

### **Multiple-Use Mission**

The presence of two initiatives that may sometimes conflict is not new to the Forest Service. The Forest Service mission is to provide a continuing flow of natural resources goods and services, such as rural communications and recreation experiences, for example, while protecting the environment. Both services are important, both are backed by Forest Service and Presidential initiatives, and both are legitimate uses of Crystal Mountain.

### **Purpose of This EIS**

The purpose of this EIS is to show the trade-offs between communication needs and recreation needs if Crystal Mountain is designated or is not designated a communication site. Table 1-1 shows where the reader can locate key pieces of information the decisionmaker will use in reaching a decision.

### **Private Development on National Forests**

Private or special use on the National Forests can be authorized when no reasonable alternative exists. Special use permits (SUPs) are approved on National Forests only if there is no private or state land available that is suitable for the development. No private or State lands are available that would provide the same coverage as Crystal Mountain.

Electronic facilities can only be permitted on sites that have been designated as communication sites in the Tongass Land Management Plan (Forest Plan) and Crystal Mountain has not been designated. As a result, consideration of the application requires two analyses, one to consider designating Crystal Mountain as a communication site, and if Crystal is designated, another analysis to consider authorizing a SUP for construction and operation of a facility. This EIS is limited to the first analysis, considering designating Crystal Mountain as a communication site.

## **Background**

During the Fall of 1989 a number of hikers reported to Forest Service officials that a communication structure was located on the summit of Crystal Mountain, along with discarded batteries and other debris. The Forest Service discovered that the structure, 5 feet in diameter and 10 feet tall, with a 20-foot antenna attached, had been placed there in May of 1986 by Rock 'N Road Construction. Rock 'N Road thought the site was already permitted to Temsco, Inc., and had asked for and received permission from Temsco to occupy the area. In fact, Temsco had possessed only a temporary permit to test radios in the mid-1960s. As a result, the Rock 'N Road structure was placed on the summit in trespass. The Forest Service suggested that Rock 'N Road remove the structure or apply for a permit to make it legal.

Table 1-1. Location of Information

INFORMATION	CHAPTER 1: PURPOSE AND NEED	CHAPTER 2: ALTERNATIVES	CHAPTER 4: CONSEQUENCES
Proposed use requiring designation of Crystal	1-4, "Proposed Development"		
Extent to which there is need for services proposed	1-9, "Communications Need Survey"		
Whether site is capable of providing proposed services	1-5, "Key Site Requirements"	2-10, "Alternative 1, Designate Crystal Mountain"	
Whether other sites could meet applicant's needs		2-2-7,14-17, "Alternatives Not Considered in Detail" and "Alternatives Considered in Detail"	
Summary of costs			4-7-9, Costs to Applicant and Costs to Users
Effects of decision on communication needs			4-2, "Meeting Communication Needs"
Consequences of decision on environment & on recreational use of Crystal			4-2-7, "Compatibility with Recreation Use," "Visual Resource," and "Impact on Natural Resources"
Summary of consequences		2-22, "Summary of Consequences"	
Reasonably foreseeable actions as result of decision, and cumulative effects of such action			4-10-13, "Reasonably Foreseeable Development" and "Cumulative Effects"

On November 7, 1989, Mortronics, an electronics company working with Rock 'N Road Construction, applied for an electronic site Special Use Permit (SUP) for Crystal Mountain. The name of the applicant company was then changed to Crystal Mountain Communications. On June 6, 1990, Regional Forester Mike Barton designated Crystal Mountain as a communication site, paving the way to consider authorization of a SUP for construction and operation of a facility.

On July 25, the Regional Forester's decision was appealed to the Chief of the Forest Service. The applicant removed the trespass structure from Crystal summit on August 24, 1990, and cleaned up debris that had been left by previous users. Two public meetings were held to discuss mitigation measures to include in the environmental analysis for site development. Then on October 30, the Chief's office remanded the decision back to the Regional Forester for additional analysis. In his remand, the Chief directed the Regional Forester to perform an Area-wide communication site analysis. The Chief also directed the Regional Forester to provide more quantitative analysis to determine whether the environmental impacts were "significant" according to National Environmental Policy Act (NEPA) regulations.

As a result of the remand, the Regional forester directed the Stikine Area to (1) perform a Stikine Area-wide communication site analysis; (2) write an EIS that considers designation of Crystal Mountain; and (3) if Crystal Mountain is designated, write an environmental analysis to consider authorizing a site plan and SUP on Crystal Mountain.

## Proposed Development

The original proposal was filed by Mortronics in November, 1989. Early in 1990 the applicant incorporated as a new company, Crystal Mountain Communications. After Crystal Mountain was designated in 1990, the Forest Service met with Crystal Mountain Communications and members of the public to negotiate mitigation measures to be included in the permit decision. Then the designation was remanded. This EIS addresses a new proposal based on the mitigation measures negotiated in 1990, with the following changes:

- Addition of microwave service
- Locating the facility on the central summit rather than the east summit

### Type of Service Proposed

The applicant has proposed to construct and operate a multi-user facility capable of providing safety, commercial, and convenient communications for fishing fleets, timber companies, floatplane and marine charter services, emergency response coordination, power utilities, the Forest Service, and citizens in southeast Alaska living in remote locations. The term "multi-user" means the applicant would, in addition to housing his own equipment, lease space to other users also wishing to provide services for personal or public use.

The proposed services would include VHF and UHF radio, UHF control links to Petersburg and Wrangell, microwave, cellular telephone, and data transfer. Coverage would include areas that cannot be reached from currently designated communication sites. (See Chapter 2, "Other Sites," and also see Stikine Area-wide Communication Site Analysis, available at the Stikine Area Forest Supervisor's Office in Petersburg.)

### Proposed in First Year

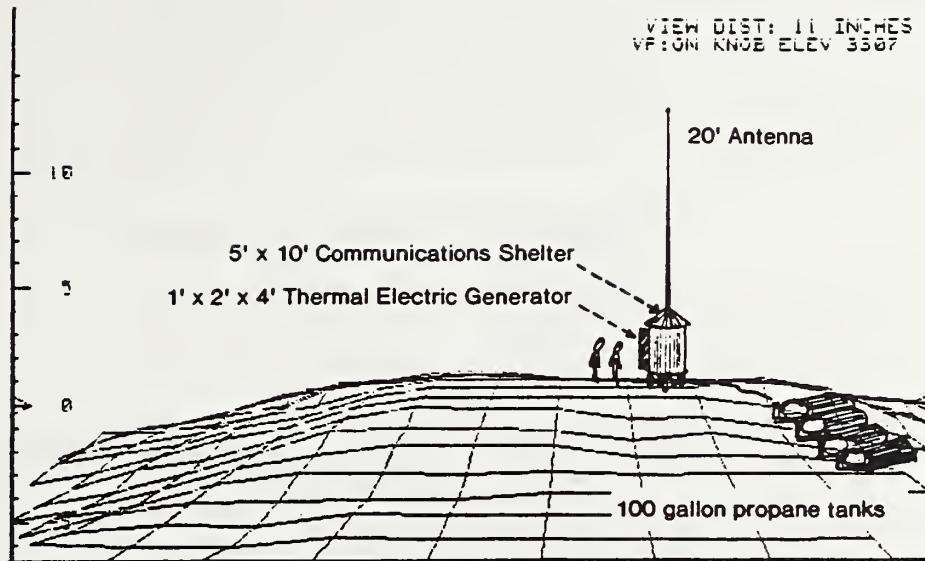
Within the first year, the applicant proposes to construct and operate a communication site for the purpose of providing space and power for the communication facilities of Rock N' Road Construction Incorporated, Mortronics, and other users in need of mountain top communications. The site would initially consist of:

- A communications shell 5 feet in diameter and 10 feet tall, painted black (see Figure 1-1)
- Antennas, solar panels, and a thermal electric generator mounted on the outside of the shell
- Six 100-gallon propane tanks located close to the shelter
- An initial area of 20-feet by 50-feet (1000 square feet)

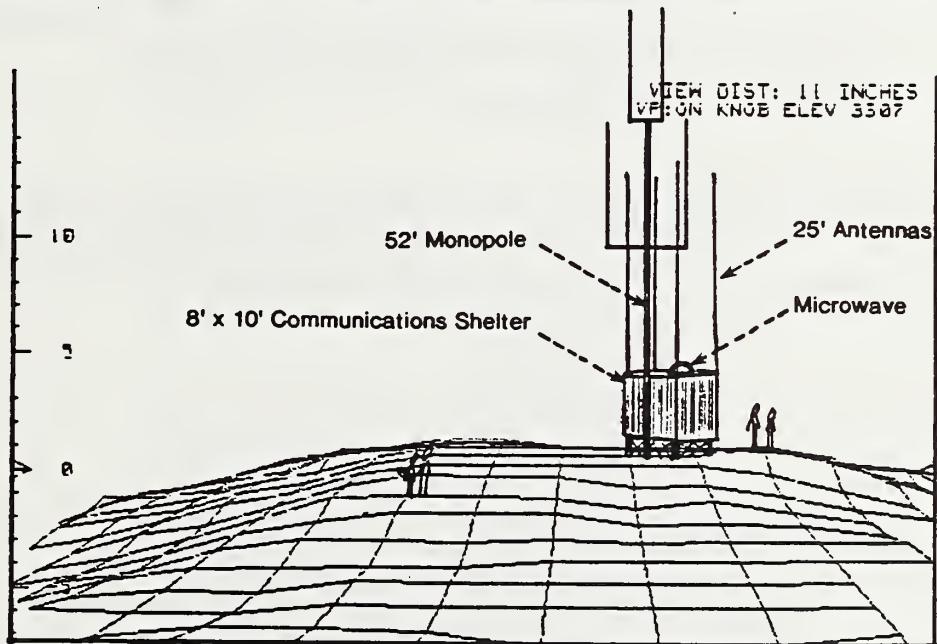
### Proposed Following First Year

Following the first year, the proposed facility would grow along with the demand for services. Development would include:

- An 8-foot wide by 8-foot tall by 12-foot long communication shelter (see Figure 1-2)
- A tower to support receiving antennas, with maximum tower/antenna height of 42 feet above the top of the communication shelter (no guywires required)
- Several transmitting antennas attached directly to the top of the shelter or to short antenna masts (up to 25 feet above the top of the building) (no guywires required)
- A microwave dish mounted on the structure (3-foot diameter)
- 1 thermal electric generator
- 4 500-gallon propane tanks
- Solar panels



**Figure 1-1. Proposed development in first year**



**Figure 1-2. Proposed development following first year**

## Key Site Requirements

A number of site characteristics are required to provide the services proposed by the applicant. All of these characteristics are available on Crystal Mountain (see maps available in Stikine Area-wide Communication Site Analysis):

## **1 Purpose and Need**

- Provides line-of-sight contact to Petersburg and Wrangell for control link for:
  - Remote monitoring and control of radios
  - Low power, handheld radio and cellular phone systems in Petersburg and Wrangell
  - Microwave link to allow many channels on each frequency (as opposed to one channel per frequency with VHF/UHF radio)
- Provides low power coverage of population centers including:
  - Petersburg
  - Kupreanof
  - Wrangell
  - Point Baker
  - Coffman Cove
- Provides low power coverage of State of Alaska land selection areas including:
  - Frederick Point South
  - Blind Slough South
  - Thomas Bay
  - Wrangell Narrows
  - Coffman Cove
  - St. Johns Harbor
- Provides as much additional low power coverage as possible in rural areas for use of handheld radios and radio pagers by:
  - loggers
  - rural residents
  - hikers
- Provides low power VHF/UHF coverage of major fishing and marine traffic areas. (While most commercial boats use high powered radios, many recreational boaters rely on low powered, handheld radios.) Bodies of water include:
  - Sumner Strait
  - Chatham Strait
  - Zimovia Strait
  - Frederick Sound
  - Duncan Canal
  - Clarence Strait

## **Decisions to be Made**

The environmental impacts documented in this Environmental Impact Statement provide the basis for the following decisions to be made by the Alaska Regional Forester and documented in the Record of Decision (ROD):

- (a) Will Crystal Mountain be designated and incorporated into the Forest Plan as communication sites?
- (b) If Crystal Mountain is designated, what characteristics will be specified for size of area and location of boundaries?

The designation of Crystal Mountain would not authorize construction and operation of a facility. It would simply say that Crystal Mountain is an appropriate place for someone to apply for a permit to provide communication services. As a result, this EIS will not address specific mitigation measures – those will be left to the site-specific permit decision. The purpose of describing the applicant's proposal in this EIS is to provide the reader with a reasonable understanding of what could develop.

## Sources of Guidance

Sources of guidance for this EIS include, but are not limited to the Tongass Forest Plan, Interim Directive 90-3 on Special Use of Electronic Sites, and the remand of the previous designation by the Chief of the Forest Service.

### Forest Plan

Communication sites are designated in the Forest Planning process; thus any new designations are considered amendments to the Forest Plan and must be signed by the Regional Forester.

The Tongass Land Management Plan (Forest Plan) allocates areas within the Forest into four land use designations (LUDs):

LUD I: To be managed as wilderness areas

LUD II: To be managed in a roadless state to retain wildland character

LUD III: To be managed for a variety of uses, both amenity and commodity, in a compatible and complementary manner to provide the greatest combination of benefits

LUD IV: To be managed for opportunities for intensive resource use and development where emphasis is primarily on commodity or market resources

Crystal Mountain is located in a LUD III area, to be managed for both amenity and commodity uses. Communication sites are an appropriate use of LUD III lands.

### Interim Directive 90-3

This interim directive (ID) is an update to the Forest Service Manual on Electronic Sites (Section 2728.1). It replaces Interim Directive 68. ID 90-3 describes the need for a Forest-wide (or Area-wide in this case) site analysis, the process for designating communication sites, site plan analysis, and many other details related to review, authorization, and administration of electronic sites. The directive also acknowledges that "designation of a communications site is a long term management decision. The decision should consider future needs of the Forest and the public, and the management direction for associated lands. Once improvements are in place, changing the management direction becomes difficult."

### Remand of 1990 Designation

Following the appeal of the Regional Forester's decision to designate Crystal Mountain as a communication site in 1990, the Chief's office agreed with the appellants that the analysis was not adequate and remanded the decision for further study. The letter of remand included a number of points that will be specifically addressed in this EIS:

# **1 Purpose and Need**

## **A. Area-wide Analysis**

The 1990 Environmental Assessment "did not analyze the relationship of the proposed Crystal Mountain site to the existing [16] sites on the Stikine Area, nor did it present information on future expansion at the Crystal Mountain site. An [Area-wide] communication site analysis is necessary to provide information about past, present, and future actions to which the proposal may be connected, and about actions with which it may create cumulative impacts."

## **B. Environmental Impacts**

"Many people were concerned about the diminished or lost recreation opportunities which may occur as a result of the proposed action. Both the Recreation Specialist's report and the EA fail to respond to these concerns. The analysis lacks the detail and quantitative analysis necessary to evaluate the significance of impacts... In addition, the EA fails to adequately analyze the cumulative impacts and reasonably foreseeable future increased use of the site. Also, the impact of the proposed action upon future recreation use is not fully addressed."

## **C. Are the Relative Value of Uses Analyzed and Disclosed?**

## **D. Is a Communication Site Compatible with Recreation Use?**

## **E. Do Viable Alternative Sites Exist?**

## **F. Is Designation a Significant Amendment to Forest Plan?**

# **Stikine Area-Wide Communication Site Analysis**

The Stikine Area-wide Communication Site Analysis provides information that helps managers decide whether designation is warranted. It is not an environmental analysis or decision document. The analysis was used to understand whether Crystal Mountain is capable of providing the services proposed, and whether the proposal addresses real communication needs.

## **Plotting Communication Coverage**

Communication coverage from any mountain top is difficult to judge simply by looking at topographical maps. A specialist can speculate about individual points a site might reach, but that person's knowledge is difficult to display to a public that is essentially asked to take the specialist's word for it. On-the-ground testing is also difficult because it demonstrates only points of coverage, not areas, and even then the points might reflect coverage that can only be depended on half the time. A third source of information on communication coverage is computer mapping based on United States Geologic Survey data and a program that calculates the behavior of radio waves.

A number of people have suggested that other sites could be compared with Crystal more effectively by performing on-the-ground testing. For example, the Lindenberg facility can sometimes talk to Wrangell even though the Area-wide Analysis maps suggest this is not possible. It may be true that the Lindenberg facility can talk to points in Wrangell, at some power levels, on some frequencies, during some weather conditions. But such coverage may disappear if the user in Wrangell used a low-power, handheld radio; or if a high-power user moved 100

yards in the wrong direction; or if weather conditions changed. Coverage of this type is not considered reliable for planning purposes. The Area-wide Analysis maps show not just a few points that can be reached, but areas of reliable coverage at various power levels.

## **Coverage Maps From NTIA**

### **Comparison of Sites**

To develop a dependable knowledge of dependable communication coverage, the Forest Service ordered a set of maps from the National Telecommunications Information Agency (NTIA) in 1991. NTIA is a federal agency located in Boulder, Colorado, specializing in telecommunications information for many private and public groups including the Federal Aviation Administration, the Federal Communications Commission, and the Department of Defense.

The Forest Service package includes mylar map overlays that show the coverage of each of 16 existing communication sites on the Stikine Area, along with Crystal, Sumner, and other peaks. This information can be used for a variety of communication planning efforts, and it was used in this EIS to demonstrate whether the proposed services could be provided from sites that are already designated. The map overlays clearly show that Crystal Mountain provides coverage of the Stikine River, the community of Wrangell, Sumner Strait, and Clarence Strait, areas that cannot be reached well from sites already designated.

More importantly, Crystal would tie together a number of areas that cannot communicate now. Much of the area covered by Crystal is also covered by a half-dozen other sites, but each site only covers a portion of the Crystal range. People can communicate within each of these sub-areas right now, but not between areas. The Crystal site would allow communication between sub-areas at low power levels, most notably between Petersburg and Wrangell.

## **Communication Needs Survey**

The Area-wide Analysis also includes the results of a survey that was mailed to many companies, business associations, and governmental units to identify communication needs anticipated in the next 10 to 15 years. Survey results demonstrated a desire for communication coverage that could be provided from Crystal Mountain.

Commercial boats and trucks generally have high powered radios and do not require low power communication capabilities. However, portable, low powered communications are valuable to people who are "on call," such as doctors, repair persons, and construction crews. For a single-person business servicing fishing boats, better communications could mean talking to a prospective customer on a portable phone while working on another job, saving a trip back to town to find out about the second job. Power companies could use improved service to help track down powerline problems. Outfitters, guides, and resort services could provide communications for business clients who need to maintain contact with a home office. Residents of logging camps could have telephone service. And any resident in the area could someday benefit from the improved emergency response capabilities that would be available to police departments and hospitals.

### **Surveys Received**

In January 1991 a needs survey was mailed to approximately 100 businesses, municipalities, utility companies, state and federal agencies, and others. Nineteen surveys were returned by mid-March 1991, representing 20 groups or individuals as shown in Table 1-2.

# 1 Purpose and Need

Table 1-2. Groups and Individuals Responding to Needs Survey

CATEGORY	PSG	WRG	KTN	SITKA	DALLAS	TOTAL
Businesses	5	2	2		1	10
Municipal Depts	2	3				5
State & Federal Govt	2			1		3
Hospitals	1					1
Individuals	1					1
<b>TOTAL</b>	<b>11</b>	<b>5</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>20</b>

## Services and Areas Desired

Of the 20 responses to the needs survey, 16 identified sites where communication was desired but not currently available. Four responses did not identify needs or areas. Twelve responses, or 75 percent of those who identified needs, described areas and services that could be addressed by the Crystal Mountain proposal. These included:

- The communities of Petersburg (6 responses) and Wrangell (5 responses)
- All Land in SE Alaska (4); all of Mitkof Island (2); and a 20-mile radius around Mitkof Island, Woewodski Island, Northern Prince of Wales Island, the Mainland, and South Etolin Island (1 each).
- All Water in SE Alaska (2), the Stikine River (2), Sumner Strait, Clarence Strait, Ernest Sound, Keene Channel, Frederick Sound, Stephens Passage, and the back channel of Wrangell Island (1 each).

## Type of Use Desired

The type of use desired by those responding to the survey included radio, microwave, cellular phone, facsimile, private voice and data communication, and auto-monitoring of fish-hold temperatures. Many responses included more than one type of use:

10 Business/commercial

9 Emergency

5 Government

5 Personal

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29 Total

## Informal Contacts by Applicant

A number of businesses, government units, and individuals have expressed interest in the services proposed by the Applicant on Crystal Mountain, including:

- 20 small businesses in Petersburg
- Fishermen
- 2 logging camps
- Independent loggers
- Outfitters and guides
- Power companies
- A resort developer
- A paging service
- Petersburg and Wrangell Police Departments
- State Police network for wide range search & rescue

## Analysis Process

A Notice of Intent was published in the Federal Register on January 28, 1991, and a revised version is anticipated to be published on April 5, 1991. A team consisting of resource and planning specialists collected and analyzed information about the demand for proposed communication services and the communication coverage provided from the proposed sites.

### Public Scoping

#### From 1990 Designation

The original application for a special use permit on Crystal Mountain was filed on November 6, 1989. A scoping notice was posted in the Petersburg Pilot on November 16, describing that "development of this site could include the installation of antennas, communications shelters, fuel tanks, power generators, and fences." Responses included 23 letters by the end of 1989, 22 against the designation and one in favor.

Crystal Mountain was designated a communication site by the Regional Forester on June 6, 1990, and his decision was subsequently appealed on July 30, 1990. Following the appeal, the Forest Service received eight letters in favor of designation, along with a petition favoring designation with 186 signatures.

While waiting for the decision on the designation appeal, the Stikine Area of the Forest Service continued to prepare a site development EA and held two public meetings. People on both sides of the designation spoke with each other and with the Forest Service about the nature of their concerns and possible mitigation measures. The decision on site development was never issued, however, because the designation decision was remanded for further study and a new decision document.

#### From 1991 EIS Scoping

Public comments from the 1990 Environmental Assessment were included as part of the scoping effort for the 1991 EIS. Many of the comments from the 1989/90 scoping effort were incorporated into a 1991 scoping notice that was sent to nearly 300 persons known to be interested in the proposed development. A survey with return address was attached to the scoping notice. Public notice was also published in the Petersburg Pilot and the Wrangell Sentinel. The Forest Service received 47 replies to the 1991 scoping notice, including pro and con on designation, and describing the need for communication services, the need to consider alternate sites, and the need to minimize impacts if Crystal Mountain is designated.

### Framing Issues

Next, the team reviewed public and Forest Service comments and used them to frame questions, or issues, to help guide the analysis. Each issue describes an interest that is tracked throughout the EIS. Also described are indicators to help decisionmakers understand how well each alternative addressed the issues.

### Issues

#### 1. Meeting Communication Needs

To what extent would this alternative provide coverage that cannot be reached by existing sites and is currently desired, or will be desired within the next 10 to 15 years? Indicators of responsiveness to this issue include comparison of Crystal Mountain coverage with existing sites, response to Area-wide communication needs survey, and demand-for-service data provided by the applicant.

## **1 Purpose and Need**

### **2. Compatibility with Recreation Use**

To what extent would each alternative be compatible with current and anticipated recreation use of Crystal Mountain? Indicators of responsiveness include the quantity and quality of recreation use such as number of users, frequency of visits, description of the nature and value of the experience, a description of plans to construct a recreation trail on the mountain, and extent to which use might be disrupted.

### **3. Visual Resource**

What effect would each alternative have on the visual resource of Crystal Mountain as viewed from Mitkof Highway, Blind Slough Picnic Area, Wrangell Narrows, the access route to Crystal Peak, and from Crystal Peak itself? Indicators of responsiveness include written descriptions and drawings of how each alternative would appear from various viewpoints.

### **4. Impact on Natural Resources**

What effect would each alternative have on the physical and biological resources on Crystal Peak? Indicators of responsiveness include resource reports on water, soils, vegetation, and wildlife.

### **5. Cost to Communication Users**

To what extent do the costs to users change in each alternative? Indicators of responsiveness include changes in the cost of site development and facility maintenance, and changes in the cost of service to the customer.

(This issue is difficult to quantify because the users' cost for service at each site may not change consistently with site development and maintenance costs. The developer could choose to charge the same rate regardless of his costs, depending on what the market would bear. If so, the only change from one alternative to the next would be the size of the developer's profit margin.)

## **Tentative Issues Removed from Draft List**

The list of tentative issues included in the scoping notice contained eight issues. Four of the issues have been dropped from the list in this EIS, not because they aren't important, but because they are better addressed elsewhere in the document.

### **Long Term Expansion**

Long term expansion was dropped from the issues list because the Forest Service can make no promises about how the proposed designation may or may not be expanded at a later date. The Forest Service policy of consolidating communication sites suggests that once a site is designated, future development is likely to occur on that site rather than on other sites that are not yet designated. The subject of long term expansion will be addressed in the cumulative effects section of this EIS, including reasonably foreseeable actions.

### **Mitigation of Effects**

Mitigation is a way of reducing the impacts of any or all alternatives. There are no direct effects associated with a site designation. If Crystal Mountain is designated, mitigation will be addressed in the site development analysis.

### **Availability of Other Peaks**

Availability of other peaks is tracked as alternatives that were and were not considered in detail rather than an issue with which to judge each alternative. The point is crucial in the analysis and is addressed in Chapter 2 on pages 3-7 and 14-20.

**Economic Feasibility**

Multiple and alternate sites were not proposed by the applicant and will not be analyzed as alternatives (see Chapter 2, "Alternatives Limited to Crystal"). The Forest Service is not in a position to judge whether a different site would make a proposal uneconomical. Only the applicant can make that judgement.

**Alternatives**

The alternatives considered in detail are limited to those that would or would not designate Crystal Mountain. This limitation is intended to be directly responsive to the applicant's request. While the Forest Service could designate a different site than proposed, it could not force the applicant to develop a facility or provide services from that site.

As the remand suggests, however, the Forest Service will consider whether other sites, including multiple sites, could meet the Applicant's needs (see Chapter 2). The other sites were not considered in detail for designation, however, because none of them met the key criteria for the services proposed.

**Consequences**

The team described the location and condition of resources on those sites, and then described the consequences of each alternative and the extent to which each alternative addressed the issues.

**45-Day Comment Period**

After this Draft EIS is published, members of the public will have 45 days to comment. Following the public comment period the team will review and respond to each of the comments, revise the document, and publish a Final EIS. Finally, based on the team's analysis, the Regional Forester will issue his decision(s) in a Record of Decision.

## Additional Approvals Required

**Designation**

No approvals are required by other agencies to designate Crystal Mountain. The summit of Crystal falls outside the State of Alaska coastal zone boundary and is therefore not subject to State coastal zone consistency review (June 1988, Coastal Zone Boundaries of Alaska). Similarly, a permit for a facility on Crystal Mountain would not be subject to State consistency review.

**Site Development**

Once a site is designated, a special use permit can be issued only after:

1. The Forest Service performs a site-specific environmental analysis and
2. The developer obtains a frequency assignment from the Federal Communications Commission



# **Chapter 2**

## **Alternatives**



# Chapter 2

## Alternatives

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"[The environmental analysis should] contain or refer to the [Area-wide] communications site analysis. [It should include] an analysis of alternative sites and their relationship to the [16] currently designated sites on the Stikine Area of the Tongass.

Remand of 1990 Designation, 10/30/90

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### Process Used to Formulate Alternatives

Two alternatives were developed to respond to the applicant's proposal and to the issues described in Chapter 1.

#### Alternative 1

Alternative 1 is the proposed action. It would designate Crystal Mountain as a communication site, consistent with the applicant's proposal.

#### Alternative 2

Alternative 2 is the no-action alternative. No sites would be designated and management would continue without new communication capabilities. This EIS describes two variations on the no-action alternative:

- (a) No action because Sumner Mountain could provide services similar to Crystal but without the conflict with recreation users (Sumner Mountain is not a designated communication site)
- (b) No action because the combination of Lindenberg/Zarembo would provide services similar to Crystal but without the conflict with recreation users (Lindenberg and Zarembo Peaks are both designated communication sites)

### Range of Alternatives

The range of alternatives addresses the proposal by the applicant to designate Crystal Mountain as a communication site.

#### Rowan Proposal Removed from EIS

The Chatham Area of the Tongass National Forest proposed the designation of Rowan Mountain as a communication site for administrative and safety use by the Forest Service. The proposal was unrelated to the Crystal Mountain proposal. It was not part of an alternative to Crystal or any other site that could provide similar coverage. Rowan Mountain was initially included in this EIS because Forest Service officials thought it would be economical to process both requests at once.

## **2 Alternatives**

It has become apparent, however, that inclusion of Rowan Mountain has confused the issues for the Crystal Mountain proposal. In addition, the purpose and need for Rowan Mountain is different from the purpose and need for the proposed Crystal designation in many ways that make it awkward and unwieldy to track through the EIS. As a result, the Rowan proposal has been removed from consideration in this EIS and will be reviewed in a separate NEPA document.

### **Alternatives Limited to Crystal**

The alternatives to be considered in detail in this EIS are limited to those that would or would not designate Crystal Mountain. This limitation is intended to be directly responsive to the applicant's request for designation of Crystal Mountain with an "allow" or "deny" answer. The limitation is also intended to prevent the Forest Service from spending effort to designate an alternative site that was not proposed and might never be developed. While the Forest Service could designate a different site than the one proposed, it could not force the applicant to develop a facility or provide services there. The Forest Service will consider the availability of other sites in deciding whether to designate Crystal, but will not consider designation of other sites unless an application is filed.

### **Comparison with Other Sites**

It remains crucial, however, for the deciding officer to judge whether other sites are available which would meet the applicant's proposal to provide for public communication needs. The Forest Service Handbook on Electronic Sites suggests that the deciding officer:

"Deny the application if the site applied for is not a designated communication site, and through analysis, the authorized officer determines other sites are available which would meet the applicant's needs..." (Forest Service Manual 2720, Interim Directive 90-3).

## **Alternatives Not Considered in Detail**

The Forest Service considered a range of other options and sites in order to judge whether the applicant's proposed service could be met from some site other than Crystal Mountain (see map 2-1). This section describes those other sites that clearly do not address the applicant's proposal.

### **State or Private Land**

There is no suitable State or private land available for a communication site near Crystal Mountain. All State and private land is located at or near sea level.

### **Satellite Communication**

Scoping responses suggested that satellite communications might soon make the Crystal Mountain proposal obsolete, and requested that the Forest Service investigate this possibility.

At present there are only a limited number of communications satellites covering most of the state of Alaska, with southeast Alaska being on the fringe of coverage. The technical difficulties in interfacing a fixed location downlink based on VHF/UHF frequencies with a non-fixed satellite would not be cost effective, as service costs alone could exceed \$7,000 per month for only marginal coverage. As a result of these factors, satellite communications capabilities were not considered for further analysis as an alternative in this EIS, although it should be kept in mind that future technical developments may make this more feasible at some future date.

**No Action Because  
Crystal Services  
Not Desired or  
Viable**

If Crystal Mountain could not provide the proposed services, or if there was no desire for such services, the no-action alternative could be selected on that basis. However, Crystal Mountain would be as powerful a communication site as any in southeast Alaska, covering 6750 square miles and reaching a population of 7000 people. It could provide the services described in Chapter 1 under "Proposed Development." There is also considerable desire for the services proposed, as described in Chapter 1 under "Demand for Site and Services."

**Currently  
Designated Sites**

All of these sites are designated and provide some type of communications on the Stikine Area, but only a few provide commercial, multi-user facilities. This means that although communication for the general public is possible from all sites, it is available from only a few. Maps of the coverage from these sites are available for viewing at the Supervisor's Office in Petersburg.

**Duncan Site**

- SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 17, T. 59 S., R. 78 E., CRM
- Latitude: 56°45'12"
- Longitude: 133°09'50"

Duncan Mountain, 2606 feet in elevation, is located on the east side of Duncan Canal on Kupreanof Island. Access is by road to within one mile of the site, from the Tonka Log Transfer Facility. The site is currently occupied by an Alascom microwave facility for point-to-point telephone link, and by the Federal Aviation Agency for airport guidance and communication. The site designation is two acres.

- Low power radio coverage would include an area of 1340 square miles and a population of 1000 people
- High power radio coverage would include an area of 3650 square miles and a population of 3000 people

**Etolin Site**

- W $\frac{1}{2}$ SW $\frac{1}{4}$ sec. 18, T. 66 S., R. 83 E., CRM
- Latitude: 56°08'40"
- Longitude: 132°37'10"

Etolin Peak, 3051 feet in elevation, is located toward the southern end of Etolin Island. Access is by helicopter. The site is currently occupied by a Forest Service VHF/UHF link facility. The site designation is one acre.

- Low power radio coverage would include an area of 3420 square miles and a population of 1000 people
- High power radio coverage would include an area of 6520 square miles and a population of 5000 people

The Etolin site does not provide line-of-sight coverage to Petersburg.

## **2 Alternatives**

### **Horn Cliff**

- SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 14, T. 58 S., R. 80 E., CRM
- Latitude: 56°50'50"
- Longitude: 132°46'35"

Horn Cliff, 2880 feet in elevation, is located on the mainland, due east of Petersburg in the Stikine-LeConte Wilderness. Access is by helicopter. The site is currently occupied by an Alascom microwave facility for point-to-point telephone line. The site designation is one acre.

- Low power radio coverage would include an area of 1940 square miles and a population of 4000 people
- High power radio coverage would include an area of 5200 square miles and a population of 6000 people

Radio access is not possible to much of the area west and south of Mitkof Island.

### **Lindenberg Peak**

- SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 23, T. 59 S., R. 78 E., CRM
- Latitude: 56°44'38"
- Longitude: 133°04'30"

Lindenberg Peak, 3249 feet in elevation, is located on Kupreanof Island in the center of the Lindenberg Peninsula. Access is by helicopter. The site is currently occupied by a Forest Service VHF/UHF link station and a multi-user, special use permit to Alaska Commercial Electronics. The site designation is one acre.

- Low power radio coverage would include an area of 2000 square miles and a population of 3000 people
- High power radio coverage would include an area of 4090 square miles and a population of 4000 people

While Lindenberg Peak would provide similar coverage as Crystal Mountain to the north and west, it does not provide reliable coverage of the Stikine River, the communities of Wrangell and Point Baker, or Sumner or Clarence Strait.

### **Navy Peak**

- SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 11, T. 67 S., R. 84 E., CRM
- Latitude: 56°04'05"
- Longitude: 132°23'00"

Navy Peak, 3665 feet in elevation, is located on the southeast portion of Etolin Island. Access is by helicopter. The site is currently occupied by a State of Alaska power authority facility and a Seeley, Incorporated VHF radio facility. The site designation is 2 acres.

- Low power radio coverage would include an area of 3310 square miles and a population of 3000 people
- High power radio coverage would include an area of 6550 square miles and a population of 7000 people

Navy Peak does not provide line-of-sight coverage to Petersburg.

**Petersburg Mountain**

- SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 21, T. 58 S., R. 79 E., CRM
- Latitude: 56° 49' 33"
- Longitude: 132° 59' 10"

Petersburg Mountain, 1600 feet in elevation, is located on the eastern edge of Kupreanof Island, directly across the Wrangell Narrows from Petersburg to the northwest. Access is by helicopter. The site is currently occupied by an Alascom microwave facility for point-to-point telephone link. The site designation is one acre.

- Low power radio coverage would include an area of 360 square miles and a population of 2000 people
- High power radio coverage would include an area of 870 square miles and a population of 3000 people

Petersburg Mountain covers very little area and does not communicate with Wrangell.

**Zarembo Site**

- SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 1, T. 64 S., R. 80 E., CRM
- Latitude: 56°20'45"
- Longitude: 132°51'35"

Zarembo Peak, 2444 feet in elevation, is located near the center of Zarembo Island. Access is by helicopter or by road to within ½ mile. The site is currently occupied by an abandoned Forest Service VHF/UHF link facility, and by a Coast Guard facility. The site designation is two acres.

- Low power radio coverage would include an area of 2750 square miles and a population of 2000 people
- High power radio coverage would include an area of 5620 square miles and a population of 4000 people

The Zarembo site does not provide line-of-sight coverage to Petersburg. VHF/UHF coverage is limited to the north.

**Sites Not Designated**

The sites with latitude and longitude figures are sites that have been analyzed in the Stikine Area-wide Communications Site Analysis. Maps of the coverage from these sites are available for viewing at the Supervisor's Office in Petersburg. Mapped coverages are not currently available for those sites without latitude and longitude figures.

**Red Bay Mountain**

- SW $\frac{1}{4}$ sec. 20, T. 65 S., R. 78 E., CRM
- Latitude: 56°13'05"
- Longitude: 133°22'28"

Red Bay Mountain, 3042 feet in elevation, is located on the north edge of Prince of Wales Island. Access is by helicopter. The site is currently occupied by a Forest Service VHF/UHF link facility. However, it is designated only for administrative use by the Forest Service. The site designation is one acre.

## **2 Alternatives**

- Low power radio coverage would include an area of 4300 square miles and a population of 2000 people
- High power radio coverage would include an area of 7320 square miles and a population of 5000 people

Red Bay Mountain is not designated for commercial radio use and does not communicate with Petersburg.

### **Rocky Top Summit**

- NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 27, T. 61 S., R. 80 E., CRM

This site is 2690 feet in elevation and would not provide radio access to Wrangell and all points north to northeast of Crystal Mountain, including no line-of-sight access to Petersburg. This site would require major blasting to provide space for a communication site.

### **Woronkofski Mountain**

- NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 20, T. 63 S., R. 83 E., CRM
- Latitude: 56°23'15"
- Longitude: 132°29'15"

Woronkofski Mountain, 3240 feet in elevation, is located on Woronkofski Island, west of Wrangell. Access is by helicopter.

- Low power radio coverage would include an area of 2610 square miles and a population of 3000 people
- High power radio coverage would include an area of 5640 square miles and a population of 5000 people

Woronkofski is not a designated communication site and it does not provide line-of-sight coverage to Petersburg.

### **2648 Site**

- SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 25, T. 61 S., R. 80 E., CRM

This site is 2648 feet in elevation and would provide no line-of-sight path for radio coverage to Petersburg.

### **2600 Site**

- SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 20, T. 61 S., R. 80 E., CRM

This site is 2600 feet in elevation and would not provide access to the Wrangell area, southern Mitkof Island, and Point Frederick. The site also does not have enough physical space for a communication site.

### **2740 Site**

- NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 12, T. 61 S., R. 80 E., CRM

This site is 2740 feet in elevation. The topographic character of this site would block all line-of-sight radio access south of Crystal Mountain, including Wrangell.

**Combination Sites****2648 Site & 2740 Site**

- 2648 Site: SE $\frac{1}{4}$ , SW $\frac{1}{4}$  sec. 25, T. 61 S., R. 80 E., CRM
- 2740 Site: NW $\frac{1}{4}$  SE $\frac{1}{4}$  sec. 12, T. 61 S., R. 80 E., CRM

Sites 2648 and 2740 together could cover a similar geographic area as Crystal Mountain; however, the two sites cannot communicate with one another due to a 2800-foot ridge between them.

**Lindenberg Combinations**

A few sites provide good coverage in combination with Lindenberg Peak. The combination of Lindenberg and Zaremba was chosen for the two-site comparison with Crystal because it provides line-of-sight coverage of Petersburg and Wrangell as well as line-of-site communication between Lindenberg and Zaremba. Navy Peak and the Etolin Site were not selected because they do not communicate with Lindenberg Mountain. Although Sumner talks to Wrangell, it was not chosen because its coverage is so close to that of Lindenberg. Workonkofski was not chosen because the applicant is concerned about the lack of developable space on the summit and anticipation of recreation issues on a non-designated sight similar to those already encountered on Crystal. As a result, these combinations were deferred in favor of the combination of Lindenberg and Zaremba.

## **Identification of the Forest Service Preferred Alternative**

The Forest Service preferred alternative is to designate Crystal Mountain as a communication site. Crystal Mountain could provide line-of-sight radio communications between Petersburg and Wrangell; low power coverage of much of the rural areas and waterways on the Stikine Area; and high power coverage of 6750 square miles and a population of 7000 people.

Neither of the sites examined as no-action options could provide the coverage or reliability possible on Crystal. Sumner cannot cover Petersburg at low power levels, which could mean a loss of up to half the proposed service. The combination of Lindenberg/Zaremba is less reliable than Crystal Mountain and so much more costly it is doubtful the services would ever be offered.

## **Alternatives Considered in Detail**

These alternatives address the request by the applicant to designate Crystal Mountain as a communication site. They do not address the site-specific information required for authorizing a permit. A second environmental analysis would be required to establish a site plan and authorize a permit.

The Forest Service developed two alternatives for detailed analysis including a no-action alternative and designation of Crystal Mountain. Both alternatives provide for protection of resources; both respond to varying degrees to communication needs and compatibility with recreation use; and both address the issues identified in Chapter 1. However, each alternative allows for a different mix of benefits and tradeoffs that emphasize different values and uses.

## **Existing and Potential Communication Sites**

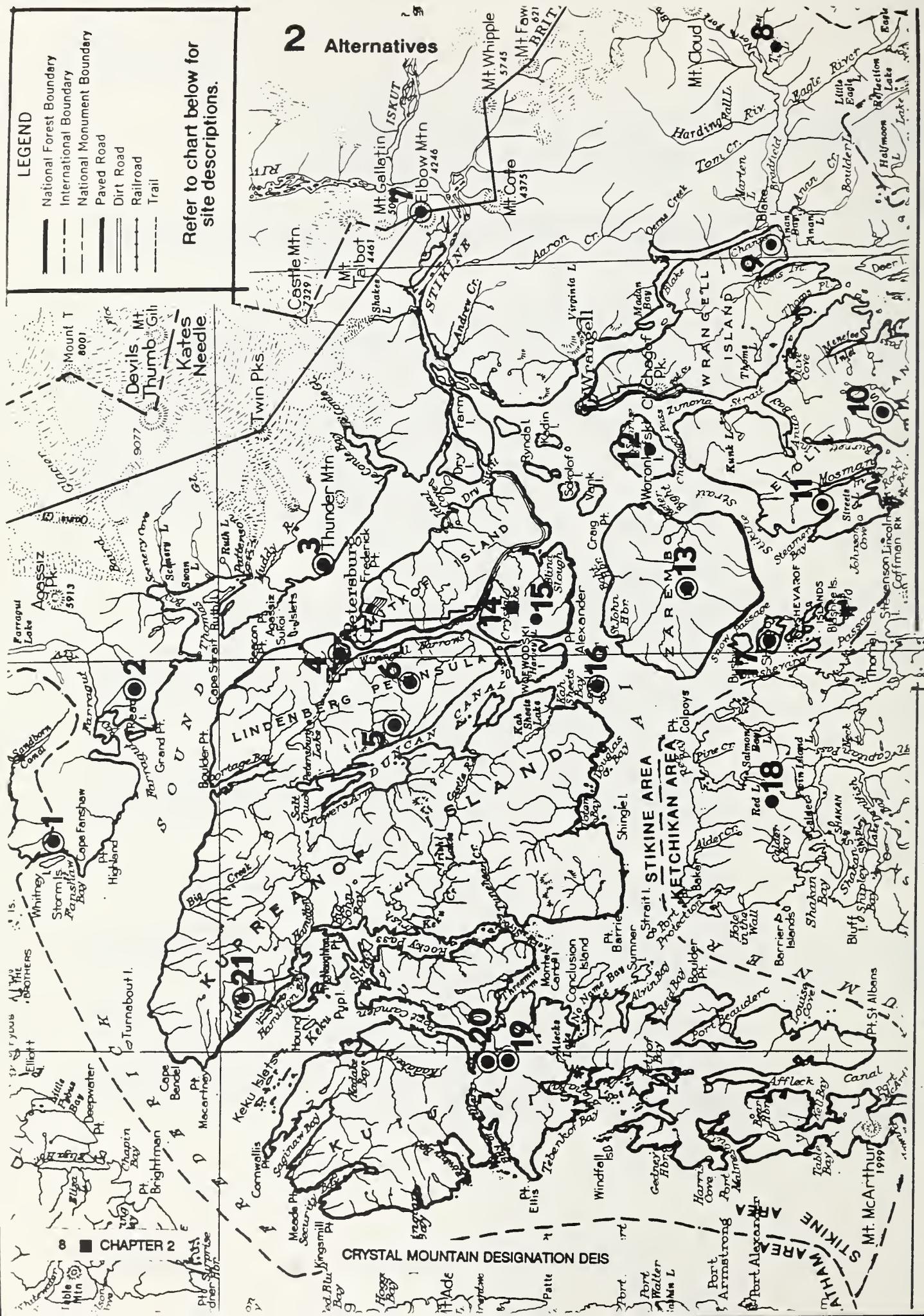
Stikine Area Toncas National Forest

Scale: 12 miles to 1 inch

Scale 30 40 50 Miles

Refer to chart below for site descriptions.

## 2 Alternatives



## Legend for Map 2-1.

Site Name	#	Location	Latitude	Longitude	Site Size	Status	Elevation
Crystal Mtn.	14	SW <sup>1/4</sup> NW <sup>1/4</sup> sec. 13, T. 61 S., R. 80 E.	56°35'05"	132°51'55"		Not Designated	3317'
Duncan	5	SW <sup>1/4</sup> NW <sup>1/4</sup> sec. 17, T. 59 S., R. 78 E.	56°45'12"	133°09'50"	2 acres	Designated	2606'
Elbow	7	NW <sup>1/4</sup> sec. 3, T. 60 S., R. 86 E.	56°42'12"	133°52'45"	1 acre	Designated	3900'
Etolin	11	W <sup>1/2</sup> SW <sup>1/4</sup> sec. 18, T. 66 S., R. 83 E.	56°08'50"	132°37'20"	1 acre	Designated	3051'
Fanshaw	1	SE <sup>1/4</sup> sec. 10, T. 54 S., R. 75 E.	57°12'22"	133°28'07"	2 acres	Designated	2100'
Farragut	2	NE <sup>1/4</sup> sec. 8, T. 55 S., R. 78 E.	75°07'22"	133°02'35"	1 acre	Designated	3810'
Fools	9	SW <sup>1/4</sup> NW <sup>1/4</sup> sec. 21, T. 65 S., R. 87 E.	56°13'02"	131°58'27"	1 acre	Designated	3133'
Horn Cliff	3	SW <sup>1/4</sup> NW <sup>1/4</sup> sec. 14, T. 58 S., R. 80 E.	56°50'50"	132°46'35"	1 acre	Designated	2880'
Kake	21	NW <sup>1/4</sup> sec. 23, T. 56 S., R. 74 E.	56°57'48"	133°40'24"	0.1 acre	Designated	600'
Kashevarof (Shrubby Is.)	17	NW <sup>1/4</sup> sec. 13, T. 65 S., R. 80 E.	56°04'10"	132°58'35"	1 acre	Designated	500'
Kuiu 1	19	SW <sup>1/4</sup> NW <sup>1/4</sup> sec. 5, T. 61 S., R. 73 E.	56°36'45"	134°02'07"	2 acres	Designated	3500'
Kuiu 2	20	NW <sup>1/4</sup> sec. 9, T. 61 S., R. 73 E.	56°36'42"	132°02'50"	1 acre	Designated	3355'
Level	16	sec. 28, T. 62 S., R. 79 E.	56°28'05"	133°05'00"	120 acres	Designated	25'
Lindenburg	6	SW <sup>1/4</sup> NE <sup>1/4</sup> sec. 23, T. 59 S., R. 78 E.	56°44'38"	133°04'30"	1 acre	Designated	3249'
Navy	10	SW <sup>1/4</sup> SW <sup>1/4</sup> sec. 11, T. 67 S., R. 84 E.	56°04'05"	132°23'00"	2 acres	Designated	3665'
Petersburg	4	SW <sup>1/4</sup> SW <sup>1/4</sup> sec. 21, T. 58 S., R. 79 E.	56°49'33"	132°59'10"	1 acre	Designated	1600'
Red Bay Mtn.	18	SW <sup>1/4</sup> sec. 20, T. 65 S., R. 78 E.	56°13'05"	133°22'28"	1 acre	FS Admin Only	3042'
Sumner	15	NW <sup>1/4</sup> N <sup>1/2</sup> sec. 26, T. 61 S., R. 80 E.	56°33'30"	132°52'55"		Not Designated	2730'
Tyee	8	NE <sup>1/4</sup> sec. 26, T. 65 S., R. 90 E.	56°12'25"	131°26'15"		Not Designated	4716'
Woronkofski	12	NW <sup>1/4</sup> SE <sup>1/4</sup> sec. 20, T. 63 S., R. 83 E.	56°23'15"	132°29'15"		Not Designated	3204'
Zarembo	13	SE <sup>1/4</sup> SW <sup>1/4</sup> sec. 1, T. 64 S., R. 80 E.	56°20'45"	132°51'35"	2 acres	Designated	2444'

## **2 Alternatives**

### **Alternative 1**

### **Designate Crystal Consistent With Proposal**

- SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 13, T. 61 S., R. 80 E., CRM
- Latitude: 56°35'05"
- Longitude: 132°51'55"

#### **Description**

Alternative 1 would designate a communication site on Crystal Mountain that would be adequate for full facility development as proposed by Crystal Mountain Communications. The proposed multi-user facility would provide radio, cellular telephone, common carrier microwave, commercial microwave, and data transfer communication services. The term "multi-user" means the facility would, in addition to housing the company's own equipment, lease space to other users wishing to provide services for personal or public use.

Type of Facility: Multi-user

Type of Service: radio, cellular telephone, microwave, data transfer

Applicant: Crystal Mountain Communications

Island: Mitkof

Management Area: 19

Value Comparison Unit (VCU): 451/447/448

Elevation: 3317 feet

**Low Power Coverage:** An area of 3550 square miles and a population of 5000 people. Coverage includes Wrangell, Petersburg, Coffman Cove; Sumner Strait, Duncan Canal,  $\frac{1}{2}$  of Clarence Straight, Frederick Sound, and the Stikine River; Zaremba, northern Prince of Wales, Mitkof, and north Wrangell Islands, most of Kupreanof Island, the east  $\frac{1}{2}$  of Kuiu Island, and north Etolin Island (see Map 2-2).

**High Power Coverage:** An area of 6750 square miles and a population of 7000 people. Coverage includes much of the islands of Mitkof, Kupreanof, Kuiu, Zaremba, and the north end of Prince of Wales; the communities of Wrangell, Point Baker, Kake, Petersburg, Coffman Cove, and Port Alexander; much of Sumner Strait, Wrangell Narrows, Frederick Sound, Clarence Strait, Zimovia Strait, and the Stikine River (see Map 2-3).

#### **Specifications**

#### **Designation Decision**

These specifications apply to the designation only. If Crystal Mountain is designated a communication site, additional design specifications may be included in the permit decision.

1. Size of area designated: One acre
2. Location & boundaries of area designated: Any shape contiguous with summit
3. Access: Helicopter, foot
4. Access timing restrictions: None
5. Maintain public access for recreation and other uses

**For Consideration In Permit Decision**

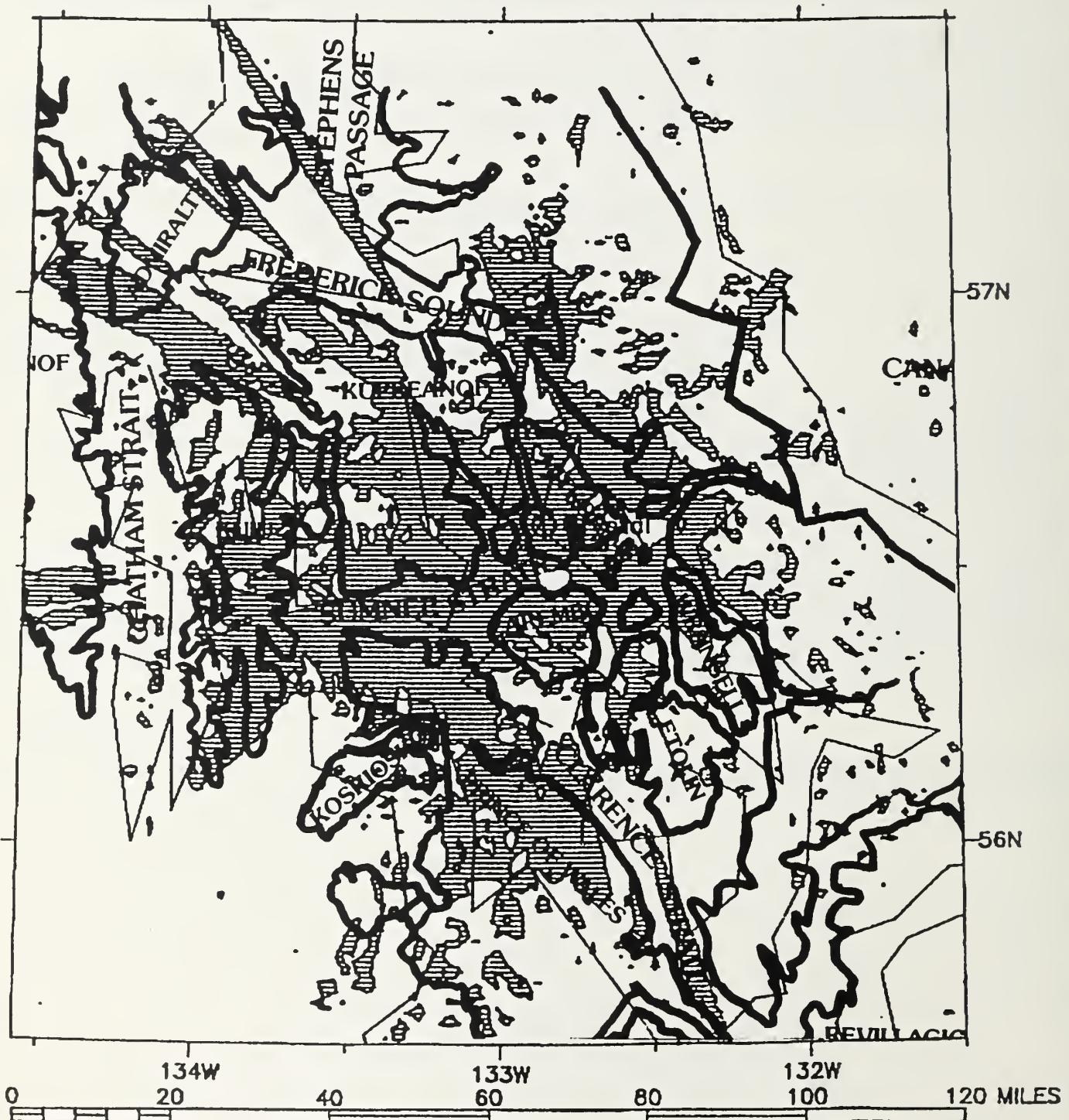
The following design specifications, among others, may be addressed in the permit decision, not in the designation decision.

- (a) Maximum area allowed for development
- (b) Fuel type
- (c) Location and design of the development to blend with elements found in the environment.
- (d) Selection of fuel tank and cradle color to blend with surroundings
- (e) Color of structures and limited use of reflective materials to minimize visibility and dominance.
- (f) Enforcement of terms of special use permit to keep site clean and completely free of debris.
- (g) A plan to ensure no contaminants enter surface or subsurface water resources.
- (h) Maximum size of communication shelter, for example, X-foot height by Y-foot width by Z-foot length (height as measured from elevation from ground where building, not footing, contacts ground. At no time shall building foundation be more than three feet above ground.)
- (i) Maximum number and height of antenna towers and whether guywires are allowed
- (j) Maximum height of antennas above tower
- (k) Noise limits
- (l) Specifications regarding maximum number of power generators, number and size of fuel tanks, location and arrangement of fuel tanks in individual cradles rather than on one large platform.

## 2 Alternatives

Map 2-2. Low Power Communication Coverage from Crystal Mountain

- 20 foot antenna height
- 200 megahertz frequency
- Communicating from low power, handheld radio or cellular phone (5 watts power with 0 dBm gain antenna, or 5 watts total power)



**Map 2-3. High Power Communication Coverage from Crystal Mountain**

- 20 foot antenna height
- 200 megahertz frequency
- Communicating from high power radio in boat, truck, or home (25 watts power with 6 dBm gain antenna, or 100 watts total power)



## **2 Alternatives**

### **Alternative 2**

#### **No Action**

No action means Crystal Mountain would not be designated. As a result, permits could not be authorized, nor could construction or operation of communication facilities be allowed. No new communication services could be provided from Crystal Mountain.

Two reasons the no-action alternative might be selected are two alternate sites that could provide communication services without the recreation conflict identified on Crystal Mountain:

- (a) Sumner Mountain is capable of providing the proposed services without the recreation conflict on Crystal; and
- (b) The Lindenberg/Zarembo combination is capable of providing the proposed services without the recreation conflict on Crystal.

### **Alternative 2A: Sumner Peak**

- SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 26, T. 61 S., R. 80 E., CRM
- Latitude: 56°33'30"
- Longitude: 132°52'55"

Sumner Peak, 2730 feet in elevation, is located on southwest Mitkof Island, south of Crystal Mountain.

**Low Power Coverage:** An area of 2700 square miles and a population of 4000 people. Coverage includes the communities of Wrangell, Point Baker, Coffman Cove;  $\frac{1}{2}$  of Zarembo Island, less than  $\frac{1}{2}$  Mitkof and northern Prince of Wales Islands,  $\frac{1}{3}$  of Kupreanof Island, small portions of Wrangell and Etolin islands; Sumner Strait, Duncan Canal, Wrangell Narrows,  $\frac{1}{2}$  Clarence Strait and Stikine River, small amount of Frederick Sound.

**High Power Coverage:** An area of 5400 square miles and a population of 5000 people. Coverage includes the communities of Petersburg, Wrangell, Point Baker, Coffman Cove, Kake; most of Mitkof, Kupreanof, and Zarembo Islands,  $\frac{1}{2}$  northern Prince of Wales, small portions of Wrangell and Etolin Islands; Sumner Strait, Duncan Canal, Wrangell Narrows, most of Clarence Straight,  $\frac{1}{2}$  Frederick Sound,  $\frac{1}{3}$  Zimovia Strait.

While Sumner provides a line-of-sight path to Scow Bay, it cannot be reached from downtown Petersburg with low power equipment such as handheld radios and cellular phones (see Table 2-1). Sumner may require construction of a platform to brace a communication structure on the steep summit.

### **Alternative 2B: Lindenberg and Zarembo**

#### **Lindenberg**

- SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 23, T. 59 S., R. 78 E., CRM
- Latitude: 56°44'50"
- Longitude: 133°04'30"

#### **Zarembo**

- SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 1, T. 64 S., R. 80 E., CRM
- Latitude: 56°20'45"
- Longitude: 132°51'35"

Lindenberg Peak, 3249 feet in elevation, is located on Kupreanof Island in the center of the Lindenberg Peninsula. The Zarembo site, 2444 feet in elevation, is located near the center of Zarembo Island.

Both sites are already designated as communication sites. A permit application to operate on this combination of sites would not require a new site designation.

**Low Power Coverage:** The communities of Petersburg, Wrangell, Point Baker, Coffman Cove, Meyers Chuck; Zarembo Island, the north  $\frac{1}{2}$  of Prince of Wales,  $\frac{1}{2}$  of Mitkof, Kupreanof, and Wrangell Islands; Sumner Strait, Clarence Strait, Duncan Canal,  $\frac{1}{2}$  Stikine River,  $\frac{1}{3}$  Frederick Sound (see Map 2-7).

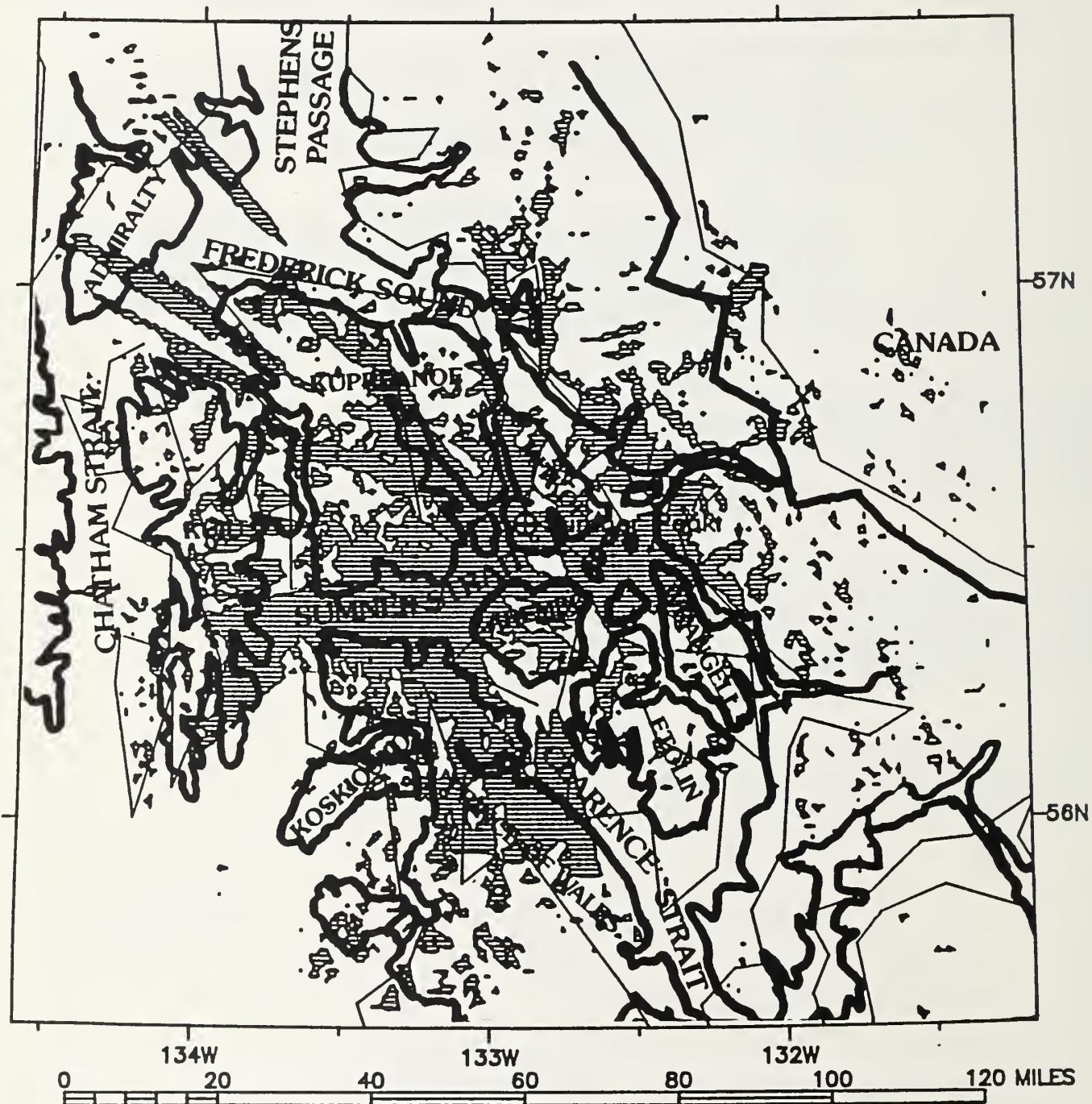
**High Power Coverage:** The communities of Petersburg, Wrangell, Kake, Point Baker, Port Alexander, Coffman Cove, Meyers Chuck; Zarembo and northern Prince of Wales Islands,  $\frac{1}{2}$  of Mitkof and Etolin Islands,  $\frac{1}{3}$  Wrangell Island; Sumner Strait, Clarence Strait, Duncan Canal,  $\frac{1}{2}$  Frederick Sound and Zimovia Strait (see Map 2-6).

This combination of sites covers more area than Crystal Mountain, but fewer people. The use of these two sites in place of a single site would require more than twice as many radios and radio frequencies to talk not only to the customers, but between the two sites. Reliability would decrease considerably because a problem on either peak or between peaks would bring down the entire network.

## 2 Alternatives

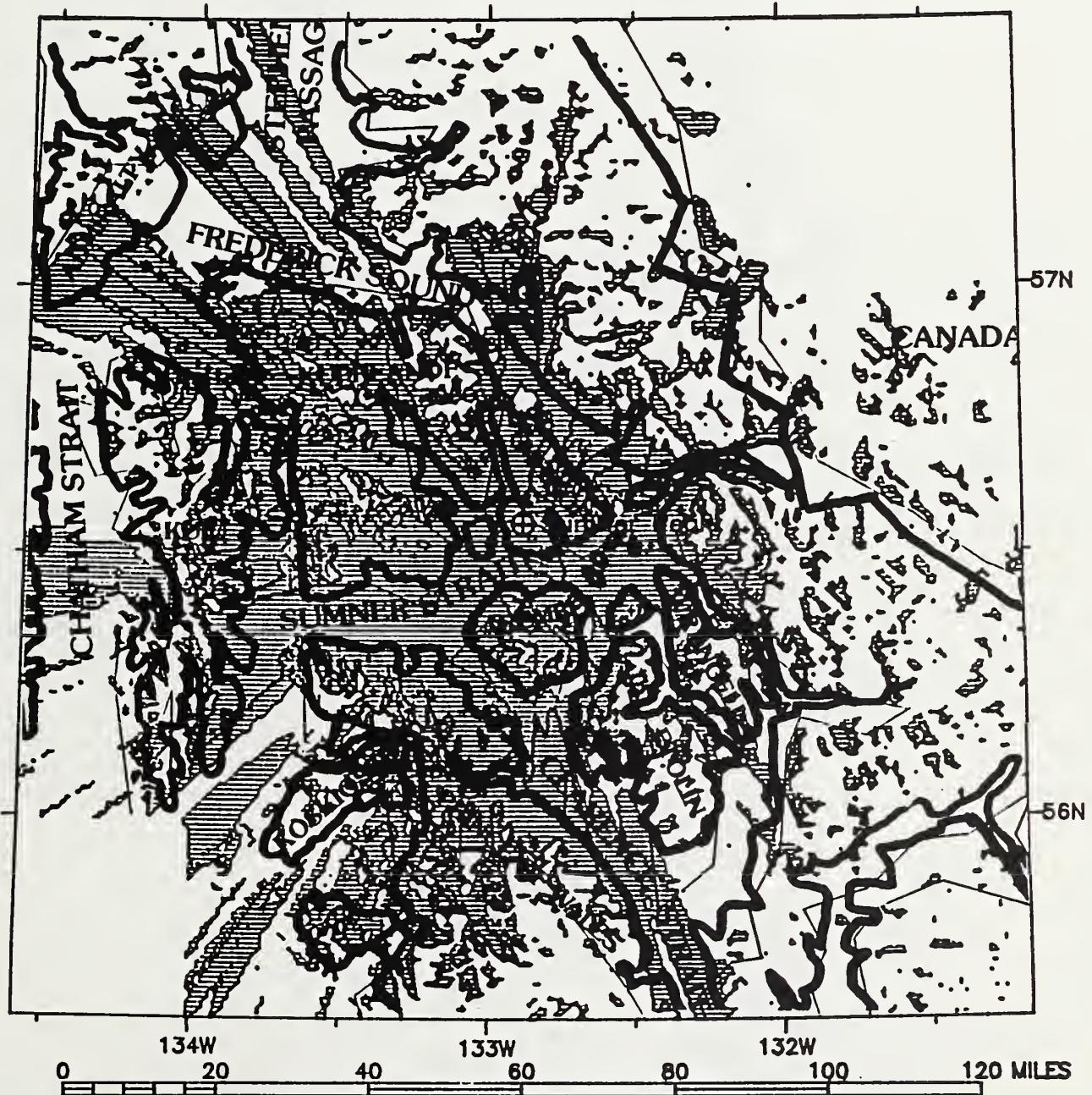
Map 2-4. Low Power Communication Coverage from Sumner Mountain

- 20 foot antenna height
- 200 megahertz frequency
- Communicating from low power, handheld radio or cellular phone (5 watts power with 0 dBm gain antenna, or 5 watts total power)



Map 2-5. High Power Communication Coverage from Sumner Mountain

- 20 foot antenna height
- 200 megahertz frequency
- Communicating from high power radio in boat, truck, or home (25 watts power with 6 dBm gain antenna, or 100 watts total power)



## 2 Alternatives

Table 2-1. Comparison of Low Power Communication Coverage of Communities and State Land Selections

Coverage	Crystal	Sumner	Lindenberg/ Zarembo
<b>Communities</b>			
Petersburg	yes	no	yes
Wrangell	yes	yes	yes
Point Baker	yes	yes	yes
Coffman Cove	yes	yes	yes
<b>State Land Selections</b>			
Blind Slough South	yes	yes	yes
Thomas Bay	yes	yes	yes
Wrangell Narrows	yes	yes	yes
Coffman Cove	yes	yes	yes
St. Johns Harbor	yes	yes	yes
Duncan Canal	yes	50%	yes
Frederick Point South	yes	no	no

## Summary Comparison of Alternatives

### Coverage

Table 2-2 compares the coverage of each alternative, as summarized below.

#### Crystal and Sumner

Sumner Mountain provides only slightly less coverage of similar areas than Crystal Mountain, but misses the commercially crucial area of Downtown Petersburg. Crystal's low power coverage includes downtown Petersburg. This difference is not apparent at the map scale shown in Maps 2-1 and 2-3 but shows clearly on the larger scale maps in the Stikine Area-wide Communication Site Analysis.

#### Crystal and Lindenberg/Zarembo

The combination of Lindenberg Mountain and the Zarembo Site covers more area and less people than Crystal, (see Table 2-2). Communications would not be as dependable as a single site, however, because a problem at either site or between sites could shut down the entire system.

**Map 2-6. Low Power Communication Coverage from Lindenberg/Zarembo**

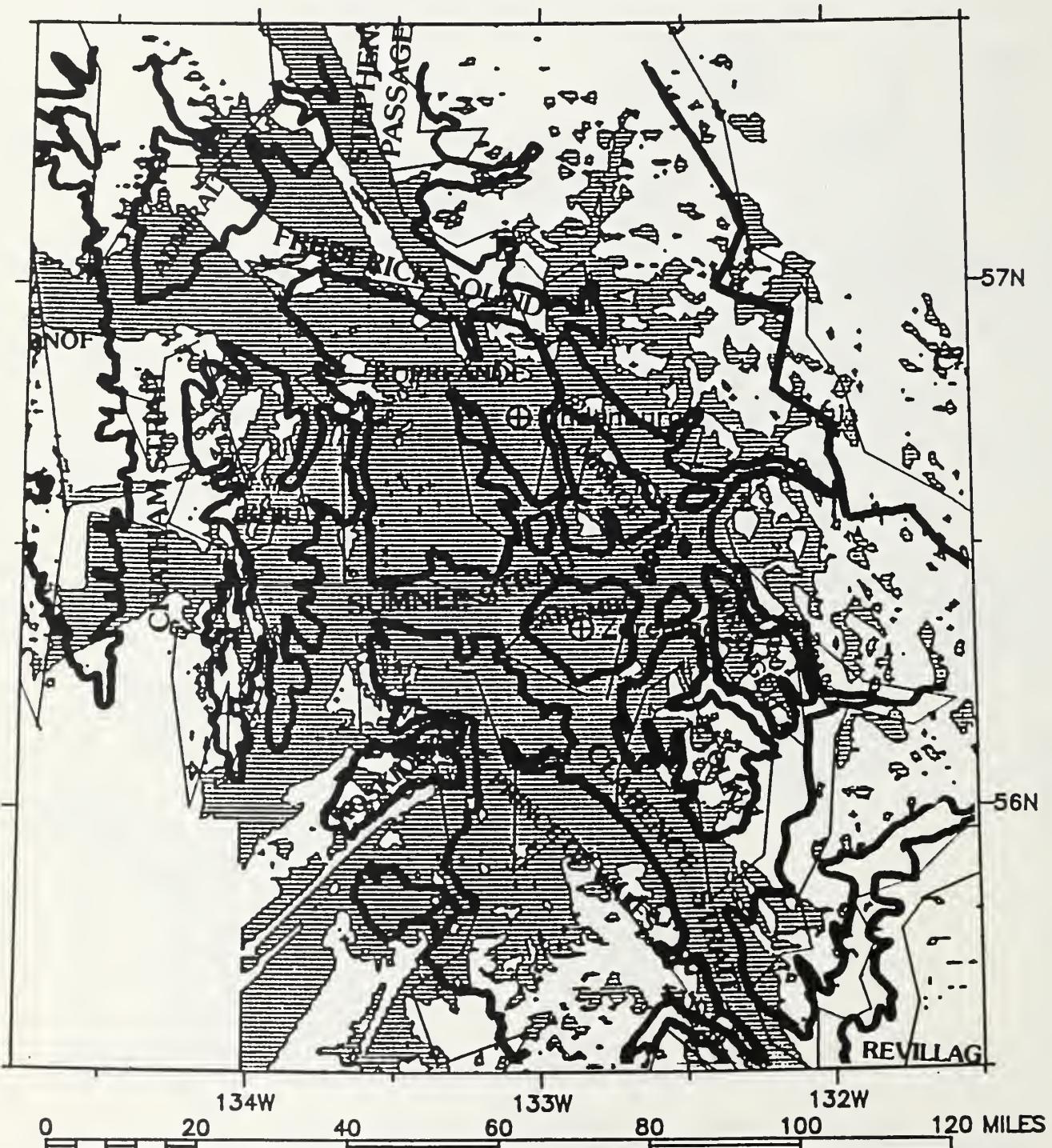
- 20 foot antenna height
- 200 megahertz frequency
- Communicating from low power, handheld radio or cellular phone (5 watts power with 0 dBm gain antenna, or 5 watts total power)



## 2 Alternatives

Map 2-7. High Power Communication Coverage from Lindenberg/Zarembo

- 20 foot antenna height
- 200 megahertz frequency
- Communicating from high power radio in boat, truck, or home (25 watts power with 6 dBm gain antenna, or 100 watts total power)



**Table 2-2. Extent to Which Each Alternative Meets Communication Needs**

Status/Coverage	Alternative 1	Alternative 2A	Alternative 2B Lindenberg + Zarembo = Lindenberg/ Zarembo		
	Crystal	Sumner			
<b>Designation</b> Designated	no	no	yes	yes	yes
<b>Population &amp; Area</b> Population Covered					
Low Power	5000	4000	3000	2000	4000
High Power	7000	5000	4000	4000	5000
<b>Area Covered (Sq. Mi.)</b>					
Low Power	3550	2700	2000	2750	4000
High Power	6750	5400	4090	5620	7000
<b>Control Link</b> Line-of-Sight					
Petersburg	yes	yes	yes	no	yes
Wrangell	yes	yes	no	yes	yes
<b>Water Areas, Low Power</b>					
Sumner Strait	62%	57%	37%	52%	66%
Clarence Strait	34%	18%	6%	59%	59%
Chatham Strait	9%	0%	10%	1%	11%
Frederick Sound	36%	19%	35%	2%	35%
Stikine River	78%	61%	17%	63%	70%
<b>Islands, Low Power</b>					
Mitkof Island	75%	48%	33%	25%	54%
Wrangell Island	15%	11%	3%	15%	17%
Zarembo Island	63%	61%	22%	87%	88%
Etolin Island	12%	8%	2%	21%	21%
N. Prince of Wales Island	32%	33%	15%	42%	45%

## 2 Alternatives

# Summary of Consequences

Table 2-3. Summary of Consequences

Consequences	Alternative 1 Crystal	Alternative 2A Sumner	Alternative 2B Lindenberg/Zaremba
<b>Direct Effects</b>			
Forest Plan	designates Crystal	none	none
Crystal Mountain	none	none	none
<b>Indirect Effects</b>			
<b>Meeting Communication Needs</b>			
Low Power	fully meets needs	misses Petersburg at low power	similar to Crystal, but covers more area and fewer people
High Power	fully meets	fully meets	fully meets
<b>Compatibility with Recreation Use</b>			
Access	no change	no change	no change
Trail Plans	continue, with design considerations	no change	no change
Recreation Experience	changes experience, bothers some, not others	no change	no change
Compatibility	compatible to some, not to others	no change	no change
<b>Visual Resource</b>			
Visual Sensitivity - View from Background - View Approach Summit - View From Summit	mountain dominates facility dominates walk to view 360 degrees	mountain dominates mountain dominates no change	mountain dominates mountain dominates no change

**Table 2-3. Summary of Consequences (continued)**

<b>Consequences</b>	<b>Alternative 1 Crystal</b>	<b>Alternative 2A Sumner</b>	<b>Alternative 2B Lindenberge/Zaremba</b>
Visual Quality Objectives - View From Background - View Approach Summit	meet Retention  probably can't meet Partial Retention	meet Retention on Crystal meet Partial Retention on Crystal	meet Retention on Crystal meet Partial Retention on Crystal
<b>Impact on Natural Resources</b>			
Soils and Geology	a few rock bolts	no effect on Crystal	no effect on Crystal
Vegetation	96 square feet alpine covered, + antenna towers	no effect on Crystal	no effect on Crystal
Watershed	small pond could be covered	no effect on Crystal	no effect on Crystal
Wildlife	no effect	no effect	no effect
<b>Cost to Communication Users</b>			
Cost Factor	3.2	3.5	8.1
Hypothetical Service	\$320	\$350	\$810
<b>Cumulative Effects</b>			
Meeting Communication Needs	meet & expand	would not meet	would not meet
Compatibility with Recreation Use	access, views, trail plans still viable; likely to see more hikers with trail; diesel generator bulkier, noisier, more smell than propane; buried powerline less noticeable than propane tanks	on Crystal, likely to meet more hikers with trail constructed	on Crystal, likely to meet more hikers with trail constructed
Visual Resource			
Background Distance	mountain dominates	mountain dominates	mountain dominates
On Approach to Summit	facility dominates	mountain dominates	mountain dominates

## 2 Alternatives

Table 2-3. Summary of Consequences

Consequences	Alternative 1 Crystal	Alternative 2A Sumner	Alternative 2B Lindenberg/Zaremba
<b>Impact on Natural Resources</b>			
Soils and Geology	a few rock bolts for structure and antenna towers	none	none
Watershed	diesel fuel storage would require spill containment structure	none	none
Vegetation	some vegetation displaced by diesel fuel tanks and generator, or temporarily by buried power-line		
Wildlife	a few animals may be displaced from immediate vicinity of diesel generator	none	none
<b>Cost to Communication Users</b>	increased development would mean increased service at competitive rates		

# **Chapter 3**

## **Affected Environment**



# Chapter 3

## Affected Environment

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"The environmental impact statement shall succinctly describe the environment of the area to be affected or created by the alternatives under consideration. The descriptions shall be no longer than is necessary to understand the effects of the alternatives."

CEQ Regulations, 1502.15

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### Introduction

This chapter describes the environment that would be modified by the proposed designation. It describes the resource conditions and uses of the Crystal Mountain area without the proposed development, and serves as a baseline for comparing the consequences or changes (Chapter 4) as a result of each alternative (Chapter 2). The resources are described in terms of the five issues identified in Chapter 1 as key themes in the design and evaluation of alternatives.

This information has been taken from more detailed reports that are available for public review in the planning record, located in the Stikine Area Supervisor's Office, Petersburg, Alaska. Sources of information include the 1990 Site Designation Environmental Assessment, the analysis developed for the 1990 site plan and permit authorization, resource reports, public comments, and field review by the 1990 Forest Service Team. Additional information on geology, soils, water, fisheries and wildlife values, vegetation, and climatic conditions were considered from other sources. These include the Analysis of the Management Situation (Appendix C, Roadless Area, 1990), the Tongass Land Management Plan Final EIS (1979), and the Southeast Area Guide (1977). These documents are available at the Forest Supervisor's Office and the District Ranger's Office in Petersburg, Alaska.

### Description of Crystal Mountain and Vicinity

Crystal Mountain is located in the southwest corner of Mitkof Island about 15 miles south of Petersburg (SW ¼, NW ¼, Section 13, T61S, R80E, CRM). The mountain rises from sea level to 3317 feet. Crystal Lake, 240 acres in size, lies north of Crystal Mountain in a steep-sloped cirque. Large rock outcrops are abundant along the ridge and near the summit. Small mountain ponds are dispersed along the ridge with several located near the summit area. The northeast side of Crystal Mountain drains into Crystal Lake, which is the water source for the State's Crystal Lake fish hatchery and for residents of the hatchery. The dam also directs water to a generating plant at Blind Slough that provides electricity to the community of Petersburg.

## Meeting Communication Needs

The communication structure shown in Figure 3-1 operated on the Crystal Summit from May 1986 through August 1990, when the applicant removed it. There are no communication facilities on Crystal Mountain now. The user groups targeted by the applicant are currently served by a number of designated sites as described in Chapter 2, but these sites would have to be linked together into a network to provide the coverage offered by Crystal. They are not linked now, and considerable expense would be required to link them.

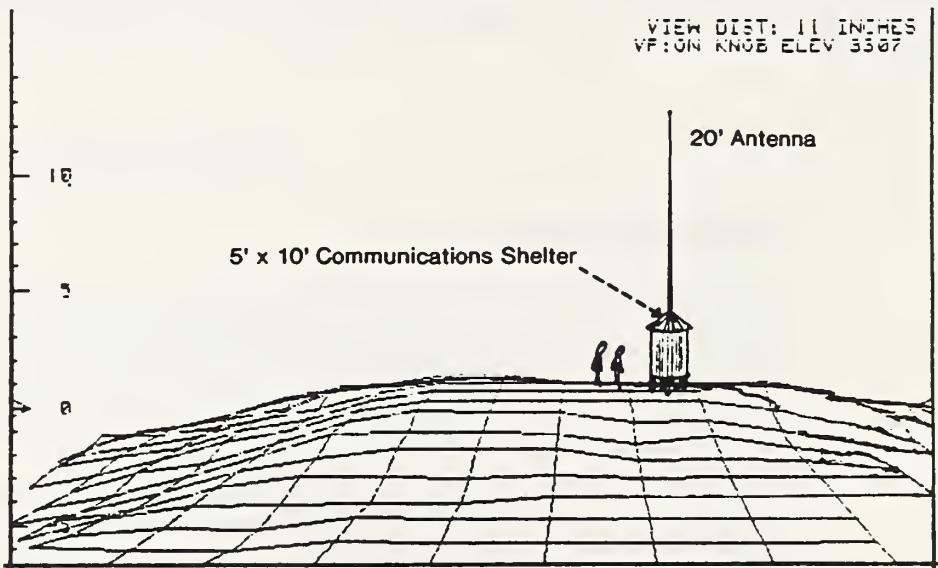


Figure 3-1. Communication Structure Located on Crystal Summit from May 1986 through August 1990.

## Recreation Use Compatibility

### Recreation Use

Crystal Mountain is used by hikers in the summer and skiers in the spring. Estimates range from 50 to 200 hikers, snowshoers, and skiers per year. The caretaker who lives at the Crystal powerplant at the hatchery, near the base of the water pipeline estimates that he has seen an average of 100 hikers use the pipeline right-of-way each year. Many people who hike to the summit report that the natural appearance is the main attraction. The area is attractive for alpine recreation because of the easy access from Petersburg. The unobstructed views are another attraction. Users of the area range from local residents to seasonal workers, to summer visitors, some of whom are traveling on the Alaska Marine Highway.

**Recreation Access**

There are two main access routes, both by foot. The first is from the Blind Slough picnic area off Mitkof Highway, up the pipeline right-of-way across State land from the Crystal Lake fish hatchery to Crystal lake (this route across Petersburg City right-of-way is not preferred by City Officials). The second is from Forest Service Road 40006, the Snake Ridge Road. From either route, the trip generally requires five hours of cross country travel each way. A primitive trail is maintained by the Thomas Bay Power Authority from the hatchery to Crystal Lake to maintain equipment. During the winter, access is only by helicopter, but spring weather melts the snow on the Snake Ridge Road and good snow conditions for skiing to the summit remain long after the snow on the rest of Mitkof Island has melted.

**Plans for Recreation Trail**

During 1989 and 1990, the Petersburg Ranger District developed a 5-year Recreation Plan. They gathered project ideas gathered from hundreds of citizens in Petersburg, Kake, Point Baker, Port Protection, and Rowan Bay. Representatives from each community volunteered to work closely with the team throughout 1990 to develop a plan that included recommendations for at least one project or one emphasis in each community. The proposed Crystal Mountain trail received one of the highest ratings in the plan and was placed on the Alaska Region Capital Investment Project list.

- The early stages of design for the trail include these preliminary objectives:
- Provide access to an alpine setting for a wider range of population than currently provided
  - Maintain the integrity and naturalness of the alpine environment
  - Build the trail to a standard More-Difficult or Most-Difficult (from 2/11/91 memo on Crystal Mountain Trail Design Narrative).

The trail is scheduled for design narrative to be written and NEPA analysis to be performed in 1991, trail survey and design work in 1992, and construction in 1993 depending on the availability of funds.

**The Recreation Experience (selected quotes)**

These quotes are taken from letters from the public scoping process in 1989, 1990, and 1991. They have been selected on the basis of describing the nature of the recreation experience for those people using Crystal Mountain.

"The top gives a stunning view of Duncan Canal, [Wrangell] Narrows, Sumner Straight, and the mainland mountains. There is no other place I know on the island that is as easy to reach that offers anywhere near as beautiful a hike. I have climbed it several times and camped on the ridge part way up."

"One of my most vivid and precious memories is of sitting on the top on a windy August day and watching a dozen or more eagles, hawks, and ravens playing in the winds, soaring so close to me I could hear the wind in their wings."

"[Crystal Mountain] is used extensively in winter for skiing and in summer for scenic hiking. Even those who do not wish to climb its summit admire it from below, as it is the backdrop for the entire Blind Slough area."

"One of our greatest pleasures after struggling for hours to get to the mountaintop is the excitement of feeling as if we are the first people to climb to new heights... even though foot prints in the trail inform us otherwise."

## **3 Affected Environment**

### **Compatibility with Recreation**

The communication structure shown in Figure 3-1 was bolted to the Crystal Summit from May 1986 through August 1990 when it was removed by the applicant. It was present when many users climbed the mountain and enjoyed the panorama from the summit. While a few users have expressed disappointment, the structure did not prevent them from climbing the mountain or enjoying the experience, as described in "The Recreation Experience," above. The water pipeline is another sign of technology that does not prevent enjoyment of the recreation experience.

## **Visual Resource**

### **Landscape Character**

Crystal Mountain and the surrounding area provide a unique alpine setting within easy access from the community of Petersburg. The rock outcroppings, windswept vegetation, and small alpine lakes and ponds create a spectacular and distinctive landscape. Using the nationally recognized Visual Management System, this area is rated as having a Variety Class A landscape (distinctive).

### **Visual Sensitivity**

The peak is visible from a number of viewpoints and the view from the peak is also considered.

#### **View From Mitkof Highway, Wrangell Narrows, & Blind River Rapids**

Crystal Mountain appears as part of the background when viewed from Mitkof Highway, Wrangell Narrows, and the Blind River Rapids (see Figure 3-2). Crystal Mountain appears as a dominant landform from each of these areas, but the viewer is not able to observe detail from these background viewpoints, four to five miles away.



**Figure 3-2. Crystal Mountain as Viewed from Blind River Rapids.**

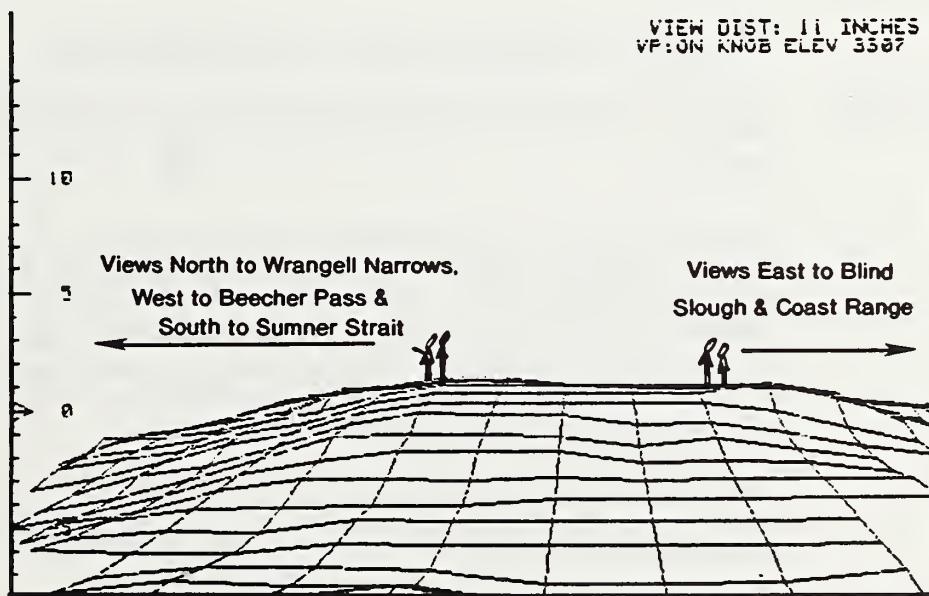
**View From Blind Slough Picnic Area**

Crystal Mountain is not visible from the Blind Slough recreation area. The western ridge of the Crystal Lake basin runs north from Crystal Peak, screening views to and from the recreation area.

The pipeline can be seen from picnic area.

**View on Approach to Summit**

Crystal Lake and the ridge top alpine environment dominate the view when approaching the summit. Recreationists have been able to view Crystal Lake for a while before they can view the summit. For a distance of a several hundred yards they can see both the lake and the summit at once. Recreationists view the summit in the immediate foreground as they approach (see Figure 3-3). The summit is often viewed as the destination of the hike up Crystal Mountain, with anticipation of a rewarding view from the top.



**Figure 3-3. Crystal Summit as Viewed from the Summit Approach.**

The portion of Crystal Mountain that faces onto Crystal Lake and the larger basin surrounding the lake is currently rated Sensitivity Level 2, where at least  $\frac{1}{4}$  and not more than  $\frac{3}{4}$  of the users have a major concern for the scenic quality of the area. Given the results of scoping and the degree of public concern expressed for Crystal Mountain, the Sensitivity Level 2 rating may no longer reflect current sensitivity of Crystal Mountains users.

**View From Summit**

The summit provides a spectacular 360-degree panorama of Sumner Straight, Duncan Canal, Wrangell Narrows, and the Blind Slough Area.

### **3 Affected Environment**

#### **Visual Quality Objectives**

The Visual Quality Objectives (VQOs) in the Crystal Mountain area are Retention and Partial Retention. In the Retention setting, activities should not be evident to the observer. In areas of Partial Retention, activities should be located and designed to be subordinate to the character of the area.

##### **Background Distance: as Viewed from Wrangell Narrows, Mitkof Highway, and Blind River Rapids**

As seen in the background distance, the inventory VQO is Retention. This reflects the Sensitivity Level 1 rating of the Wrangell Narrows, Mitkof Highway and the Blind Slough area as well as the Variety Class A landscape character. In a Retention setting, development activities should not be apparent to the observer.

##### **Foreground Distance: Summit and Lake Basin as Viewed from Approach to Summit**

From the hiker's approach to the summit, the inventory VQO is Partial Retention for the summit and the Crystal Lake basin. In this setting, development activities may be apparent but should be designed to be subordinate to the characteristic landscape.

## **Natural Resource Conditions**

#### **Soils and Geology**

The area has intermittent exposed bedrock and thin soil layers supporting vegetation. Large rock outcrops are abundant along the ridge and near the summit, and cover 340 acres.

#### **Vegetation**

Below 2000 feet in elevation the area is dominated by poorly drained spruce-hemlock forest and muskeg. Above the 2000 foot level the character of the land changes to a more dry, alpine ridgeline. Alpine habitats cover about 660 acres (Analysis of the Management Situation, p C-139). The alpine vegetation consists of widely scattered, perennial herbs and dwarfed, woody plants. Some of the plants have ranges restricted to well drained alpine ecosystems and are not common on the poorly drained ecosystems or lower elevations on Mitkof Island.

#### **Watershed**

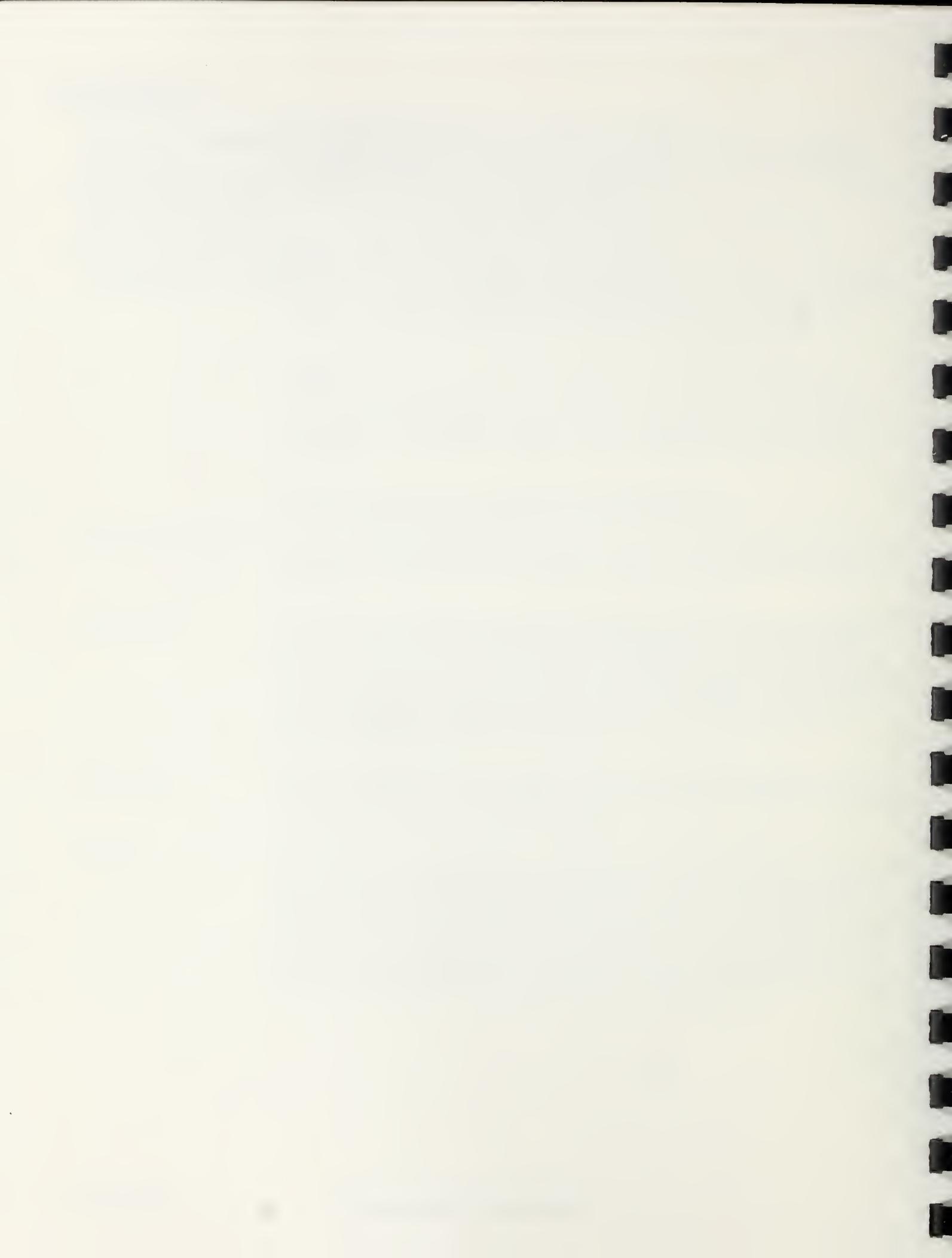
Small mountain ponds are dispersed along the ridge, with several located near the summit area. Runoff occurs by filtering through the bedrock fractures or by surface and subsurface flow over rock or through soil.

#### **Wildlife**

Sitka black-tailed deer, black bear, and wolves sometimes use the subalpine and alpine areas on Crystal Mountain. Crystal Mountain supports a breeding population of rock ptarmigan and willow ptarmigan, and is the only known breeding area on Mitkof Island for the American pipit. Canada geese use some ponds during the spring and fall. The uplifts created when winds hit the mountain attract bald eagles, red tail hawks, and common ravens. The small mountain ponds provide water sources for the wildlife during dry summer months after snow patches melt. During fall migration some bird species use the area for resting or foraging.

## Cost To Communication Users

There are currently no communication services provided from Crystal Mountain and therefore no costs to communication users. The concept of economic efficiency applies only to proposed services, or variations on proposed services. Trying to describe the economic efficiency of "no proposed action" is like trying to multiply by zero, it doesn't make sense. In Chapter 4, costs to communication users will be compared among the alternate locations. This includes Crystal Mountain and the two possibilities described as part of the no-action alternative, Sumner and the combination of Lindenberg/Zaremba.



# **Chapter 4**

## **Environmental Consequences**



# Chapter 4

# Environmental Consequences

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"[The environmental analysis should disclose the possibility of] diminished or lost recreation opportunities. [It should also] present information on the future expansion at the Crystal Mountain site, a reasonably foreseeable event given the site's advantage and the Interim Directive's direction to maximize the efficient use of sites."

Remand of 1990 Designation, 10/30/90

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## Introduction

The purpose of this chapter is to describe the direct, indirect, and cumulative effects of designating or not designating Crystal Mountain a communication site. A summary of the consequences of each alternative is displayed in Table 2-3 in Chapter 2. The information has been taken from more detailed reports that are available for public review in the planning record, located at the Stikine Area Supervisor's Office, Petersburg, Alaska.

## Direct Effects

Communication site designation is an amendment to the Forest Plan that allows communication uses to be considered. It does not permit any communication activities. There are no direct effects to Crystal Mountain as a result of designating or not designating the summit. The only direct effect of designation would be a notation in the Forest Plan.

## Indirect Effects

Indirect effects do not include site specific details such as the size of a structure or number of antennas. If Crystal Mountain were designated, site specific effects would be addressed in a separate site development analysis.

Indirect effects include the effects likely to occur as a result of designating or not designating Crystal Mountain. Indirect effects include those anticipated in the eventual development or lack of development on the site. Indirect effects are described in terms of the five issues identified in Chapter 1.

## Meeting Communication Needs

Table 2-5 summarizes the extent to which each alternative meets communications needs.

### Alternative 1

Alternative 1 would meet all the communication needs proposed by the applicant, including line-of-sight contact with Petersburg and Wrangell, coverage of 6750 square miles, access to a population of 7000 people, and good low power coverage of Petersburg, Wrangell, Kupreanof, Point Baker, and Coffman Cove.

The major advantage of Crystal over Sumner is the low power coverage (see Table 2-1 for low power comparison of Crystal versus Sumner and Lindenberg/Zaremba). This alternative would meet many communication needs that are not addressed in Alternative 2.

### Alternative 2

The no-action alternative would not fulfill the communication needs described in Chapter 1. Those sites already designated are not linked into a network and cannot connect the users targeted by the applicant. Services would not be provided to the small businesses, fishermen, loggers, outfitters and guides, rural residents, and the emergency response network described in Chapter 1.

Some of the communication needs could be met with a facility on Sumner Peak. Although not designated, Sumner could provide line-of-sight coverage to Petersburg and Wrangell as well as a large portion of the area covered by Crystal. However, low power radio users from downtown Petersburg would not be able to reach Sumner. Crystal Mountain covers downtown Petersburg (see Table 2-2). The applicant estimates that up to 50 percent of his business may come from low power radio users, people who need radio communications to be "on call" in their businesses. Sumner Mountain also cannot be reached by low power users on a sizable portion of Mitkof Island north of Crystal Mountain, where Crystal casts a shadow over Sumner's coverage.

The combination of Lindenberg/Zaremba would provide line-of-site communications to Petersburg and Wrangell as well as line-of-sight contact between the two sites. The combination would cover more square miles of area than Crystal but fewer people. The cost would increase dramatically and the reliability of the service would decline. As a result, the service would probably not be marketable, according to the Stikine Area radio technician (see Table 2-3 on costs).

## Compatibility with Recreation Use

### Alternative 1

#### Recreation Use

The same number of recreation users would be able to use Crystal Mountain as they had in the past, hiking, snowshoeing, and skiing.

#### Recreation Access

Recreation access would remain the same.

#### Plans for Recreation Trail

Planning and construction of the Crystal Mountain trail would proceed as planned in 1993. A communication facility might influence the routing or design features of the trail. More people would probably use Crystal Mountain for recreation if a trail were available.

**The Recreation Experience**

The recreation experience would change in the sense that users would share their natural experience of the summit with an obvious sign of human technology. Some people would be bothered by this, while others would not.

"We would be extremely disappointed to find communication facilities there, and to have them detract from our photographs of the summit."

"The thought of having antennas, fuel tanks, and the noise of generators -- maybe even a fence -- spoil the only mountain top we can access without heroic effort or spending large sums of money, is extremely disheartening." [The proposed facility would use propane generators, which are extremely quiet. No fences are proposed at this time.]

"It would be a desecration to place such things as generators, fuel tanks, antennas, and chain-link fences to keep the 'public' out." [Again, no fences are proposed at this time.]

"I have hiked Crystal Mountain about six times since 1981. I believe a communications site at or near the summit is compatible with existing or future recreation uses of that mountain. [As for the letter that described 'the excitement of feeling as if we are the first people to climb to new heights,' the trail described is reached by departing the Crystal Lake powerhouse and hiking adjacent to the conduit to a point where an old [bulldozer] trail heads up through the woods and joins the conduit again (which many hikers walk on) and then to the dam at Crystal Lake which hikers walk across.]"

**Compatibility with Recreation**

The first indication that communications and recreation were incompatible on Crystal Mountain came from the applicant in the cover letter to his application in 1989:

"I also recommend that the proposed trail and plans for developing this mountain recreationally be terminated to insure the security of the communications facility on this mountain. If it's pristine wilderness that recreation users want, there are thousands of acres of that already set aside for them."

Many of the 1989 responses to the proposed designation protested the notion of fences and losing access to the summit. The applicant is no longer proposing fences, restriction of access, or termination of trail plans. Nothing in Alternative 1 would prevent the same recreationists from using Crystal Mountain in the same ways they always have. As one reply to the 1989 scoping notice described:

"As a communications site, Crystal Mountain would certainly be a good one. However, if there should be a conflict of use that would preclude use or access by skiers or hikers, an alternative site should be considered." As long as he could still have access, he perceived the uses to be compatible.

On the other hand, Alternative 1 would destroy the recreation experience of a few, not because anyone would stop them from using the mountain, but because they may choose not to use it anymore:

"I don't think I'd want to climb the mountain again should any communications development take place. I want to preserve the memories I have of cooking on a fire, listening to loons on the lake, and waking up to the pristine air and scenery Crystal Mountain affords."

Alternative 1 would still allow recreation users to hike to the summit and view the panorama. Between May 1986 and August 1990, a small communications structure was bolted to Crystal Summit. It did not stop anyone from climbing the mountain. The water pipeline from Crystal Lake is another example of the presence of technology that has not prevented recreation users from enjoying Crystal Mountain.

## **4 Environmental Consequences**

### **Alternative 2**

#### **Recreation Use**

Recreation users would continue to use Crystal Mountain as before for hiking, snowshoeing, and skiing.

#### **Recreation Access**

Recreation access would remain the same.

#### **Plans for Recreation Trail**

Planning and construction of the Crystal Mountain trail would proceed as planned in 1993, without reason to consider how a communication facility might influence the routing or design features of the trail. More people would probably use Crystal Mountain for recreation if a trail were available.

#### **The Recreation Experience**

The recreation experience would remain the same, as described in Chapter 3, full of excitement, admiration, and stunning views of a natural setting.

#### **Compatibility with Recreation**

The no-action alternative is entirely compatible with recreation on Crystal Mountain. Use would occur as in the past, with no apparent conflicts between users.

## **Visual Resource**

The appearance of Crystal Mountain is shown in Figure 4-1, as viewed from Blind Rapids. This view would remain the same under all alternatives. A viewer would probably need to actively search for the site to see it without binoculars. The same is true of the views from Mitkof Highway and Wrangell Narrows.



**Figure 4-1. View of Crystal Mountain from Blind Slough.**

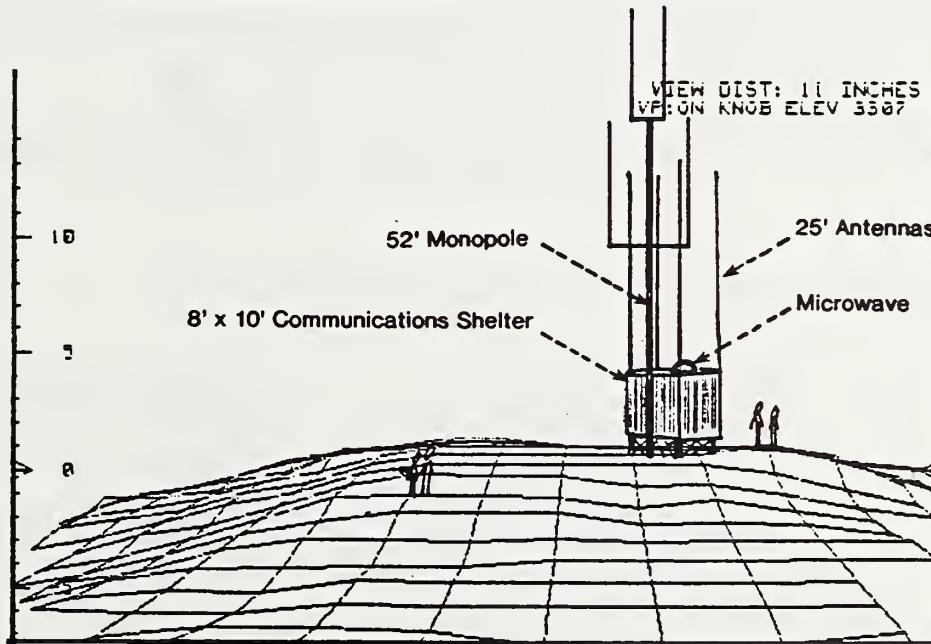
Regardless of the alternative chosen, the landscape character would not change. The open, alpine setting provides a unique landscape not found anywhere else on Mitkof Island. This open, expansive terrain allows for little opportunity to absorb development as viewed in the near or foreground distance.

## Alternative 1

### Visual Sensitivity

The potential for visual impacts are moderate to high in this alternative.

- **View from Mitkof Highway, Wrangell Narrows, and Blind River Rapids:** As seen from Mitkof Highway, Wrangell Narrows, and the Blind River Rapids area, a communication shelter and antennas would break the horizon. However, the magnitude and presence of the Crystal Mountain complex would still dominate the view.
- **View on approach to summit:** While approaching the summit, recreationists have views of Crystal lake to the north as well as the alpine features on the ridge leading to Crystal Summit. Antennas will become apparent before the summit could be seen. Once at the summit, a communication facility will dominate the foreground view. (See Alternative 1 summit as viewed from the approach in Figure 4-2.)



**Figure 4-2. Alternative 1 as Viewed from Summit Approach.**

- **View from summit.** The view from the summit will not change; however, recreationists will have to walk around the facility to observe the view.

### Visual Quality Objectives

- **Background Distance: as viewed from Wrangell Narrows, Mitkof Highway, and Blind River Rapids:** As seen from the background distance, the inventory VQO of Retention would be met. Through coloring, siting, and orientation, the facility would not be apparent to the casual observer as seen from the Mitkof Highway, Wrangell Narrows, or Blind River Rapids.

## 4 Environmental Consequences

- **Foreground Distance: Summit and Lake Basin as viewed from approach to summit:** In the foreground distance, the inventory VQO of Partial Retention would be difficult or impossible to meet. In this VQO setting, management activities must be subordinate to the characteristic landscape, which in the case of Crystal Mountain is an open, rocky alpine setting, with little vegetation and few natural features to use as elements in the design or siting of a facility. Through coloring, siting, and orientation, an attempt could be made to reduce the visual impacts as seen in the foreground. However, the bulk and magnitude of a facility would dominate the foreground view.

### Alternative 2

#### Visual Sensitivity

The possibility of visual impacts are low to non-existent in this alternative.

- **View from Mitkof Highway, Wrangell Narrows, and Blind River Rapids.** As seen in the background distance, the magnitude of the Crystal Mountain complex would dominate the area. The horizon would appear unaltered in its present visual condition.
- **View on approach to summit.** When approaching the summit, the alpine character of the area would dominate the foreground view. (See Alternative 2 summit as viewed from the approach in Figure 4-3.)

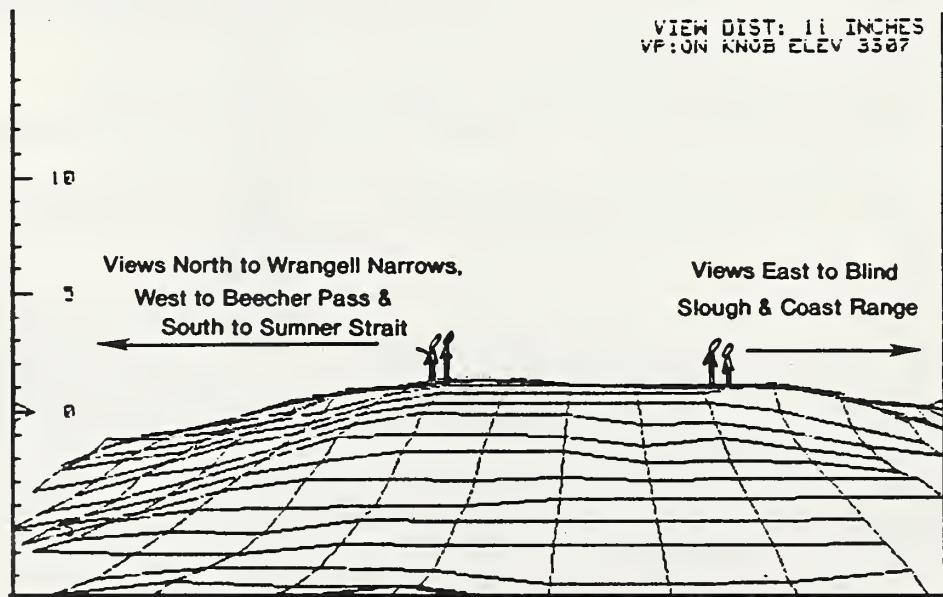


Figure 4-3. Alternative 2 as Viewed From Summit Approach.

- **View from summit.** An unobstructed, 360 degree view presents itself to the hiker.

#### Visual Quality Objectives

In this alternative the inventory VQOs of Retention and Partial Retention would be met. By not designating the site, there would be no facility to permit. As a result, there would be no effect on VQOs.

## Impact on Natural Resources

### Alternative 1

#### Soils and Geology

The only change in soils or geology would be the use of a number of rock bolts to anchor the communications structure and the antenna towers. Blasting would not be necessary.

#### Vegetation

The only change in vegetation would be placing an 8-foot by 12-foot structure over 96 square feet of alpine vegetation, in addition to a few square feet of area required by antenna towers.

#### Watershed

The structure could cover a small pond near the summit, depending on the location selected by the applicant in the permitting process. No change is anticipated in runoff patterns.

#### Wildlife

Wildlife would use the habitat on Crystal Mountain as before. No effects are anticipated. A number of bird species occasionally strike structures with antennas, particularly those with guywires. Susceptible species include bald eagles, red-tailed hawks, common ravens, rock ptarmigan, and willow ptarmigan. These birds are especially vulnerable to lighted structures at night because they are attracted to the light, fly around it, and can fatally strike the guywires. However, neither guywires nor lights are proposed by the applicant, and lights are not required on this structure by the Federal Aviation Administration.

### Alternative 2

#### Soils and Geology

Soils and geology would remain the same as before. There would be no change from the current environment.

#### Vegetation

The vegetation also would remain the same. There would be no impact on alpine vegetation.

#### Watershed

The watershed would remain the same. There would be no impact on the small mountain ponds or the runoff patterns.

#### Wildlife

The wildlife populations and habits would remain the same. There would be no new impact on Sitka black-tailed deer, black bear, wolves, rock ptarmigan, willow ptarmigan, American pipit, Canada geese, bald eagles, red tail hawks, or common ravens.

## Cost to Communication Users

The figures for cost to users were based on the estimated cost to develop and maintain the proposed services on Crystal and the two no-action, comparison sites, Sumner and Lindenbergs/Zarembo. A cost factor was developed for each option and multiplied times \$100 to compare the cost of the same hypothetical services provided from different sites.

## **4 Environmental Consequences**

### **Development Costs**

Table 4-1 compares the development costs of each alternative, as summarized below. The basic costs of establishing a site are the same regardless of the coverage area, approximately:

\$30,000 for structure and power  
\$40,000 for a 3-channel radio system  
\$6000 per year for fuel and helicopter fueling  
\$2000 per year for maintenance

= \$70,000 total for start-up  
= \$8000 total per year fuel and maintenance

The basic cost of establishing a two-site option to act as one site requires additional expenses including:

\$30,000 for second structure and power  
\$40,000 for second 3-channel radio system  
\$40,000 for radio system to communicate between sites  
\$6000 per year for second site fuel and helicopter fueling  
\$2000 per year for maintenance of second site  
\$2000 per year for maintenance of between-site equipment

\$110,000 total second site for start-up  
\$70,000 total first site for start-up  
= \$180,000 total two-site start-up

\$10,000 total per year second site fuel and maintenance  
\$8000 total per year first site fuel and maintenance  
= \$18,000 per year two-site fuel and maintenance

#### **Alternative 1: Crystal**

Development of Crystal Mountain is the least expensive because it is a single site located near the applicant's base of operations. The summit is relatively flat and easy to develop. The costs of establishing and maintaining a facility on Crystal are anticipated to be \$70,000 for start-up and \$8000 per year for fueling and maintenance.

#### **Alternative 2A: Sumner**

Sumner is also a single site located near the applicant's base, but the summit is steep and may require construction of a platform to brace the structure. The platform could require \$5000 in addition to the \$70,000 cost associated with establishing an average site, and \$8000 per year for fueling and maintenance.

#### **Alternative 2B: Lindenberg/Zarembo**

This combination site would require establishing two new sites even though a multi-user facility is already operating on Lindenberg Mountain. Full costs are anticipated on Lindenberg whether the applicant rented space from the Lindenberg site manager or built a another facility. In addition to the costs of establishing two sites, expenses include features that allow the two sites to talk to each other, such as additional radios, twice as many frequencies, and additional antennas. Start-up costs are estimated at \$170,000 plus \$18,000 per year for maintenance.

**Table 4-1. Comparison of Cost to Applicant**

	Alternative 1 Crystal	Alternative 2A Sumner	Alternative 2B Lindenberg/ Zarembo
Site Development	\$30,000	\$35,000	\$60,000
Equipment	\$40,000	\$40,000	\$80,000
Between-Site Communi- cation	\$0	\$0	\$40,000
Total Site Development	\$70,000	\$75,000	\$180,000
Average over 10 Years	\$7,000/yr	\$7,500/yr	\$18,000/yr
Fueling and Maintenance	\$8,000/yr	\$8,000/yr	\$18,000/yr
Annual Cost	\$15,000	\$15,500	\$36,000

**User Costs**

The cost to users is a hypothetical comparison of each alternative based on a number of assumptions. The cost of services was calculated based on the annual costs to develop and maintain each site, and on the potential service population that could be reached by each alternative. The Forest Service made the following assumptions in developing this analysis:

1. The developer will pass on increased development costs to customers equally in each alternative
2. Higher costs would cause some users to do without the service and the cost for remaining users would be even higher to make up for fewer customers, but
3. Differences in costs to the developer would be distributed among different numbers of users depending on the alternative, and
4. The assumption in (2) won't matter if the annual operating cost of each alternative is divided by its potential service population. For example, one location might have greater cost to develop but could also reach a larger pool of potential customers to share the higher cost. The "High Power Factor" is the annual developer cost divided by the high power service population and the "Low Power Factor" is the annual developer cost divided by the low power service population. The User Cost Factor is the average of the High Power and Low Power Factors (see Table 4-2).
5. Based on Table 4-2, The User Cost Factor for Crystal is 3.2; Sumner is 3.5, and Lindenberg/Zarembo is 8.1.

## 4 Environmental Consequences

Table 4-2. Calculation of User Cost Factor

	Alternative 1 Crystal	Alternative 2A Sumner	Alternative 2B Lindenberg/ Zarembo
Annual Cost to Developer	\$15,000	\$15,500	\$36,000
Low Power Population	3550	4000	4000
High Power Population	7000	5000	5000
Low Power Factor (AC/LP)	4.2	3.9	9.0
High Power Factor (AC/HP)	2.1	3.1	7.2
User Cost Factor (LPF+HPF)/2	3.2	3.5	8.1

The applicant anticipates offering a range of services with different costs associated with each service. Although he can't yet predict the exact cost of each service, the costs associated with each alternative should vary according to the User Cost Factor. Therefore, if the cost of a service under Alternative 1 (using Crystal Mountain) is 100 percent, the same service would cost 109 percent under Alternative 2A (Sumner Mountain) and 253 percent under Alternative 2B (Lindenberg/Zarembo). An example will illustrate these differences:

### Alternative 1: Crystal

The applicant could provide the hypothetical service for \$320 from Crystal Mountain

### Alternative 2A: Sumner

The applicant could not provide the same services from Sumner that he could from Crystal, but assuming the hypothetical service could be offered, it would cost the user \$350.

### Alternative 2B: Lindenberg/Zarembo

Lindenber/Zarembo could cover more area than Crystal, and fewer people at low power. Assuming the hypothetical service could be offered, the cost to the user would be \$810.

## Reasonably Foreseeable Development

### Alternative 1

One way of judging the extent of development on a site once it has been designated is to consider how facilities have grown on previously designated, desirable sites. Two key factors in future development are road access and availability of electricity. Sites with road access and powerlines are often developed to a greater degree than sites without these features.

- There is no road access to Crystal summit, nor is road access anticipated.

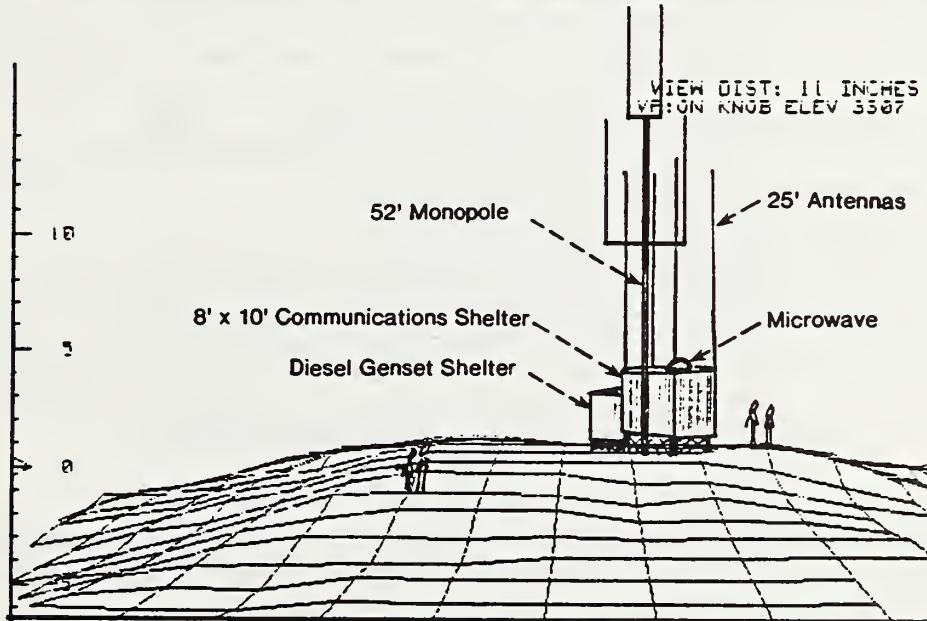
- The Forest Service can reasonably foresee the facility on Crystal Mountain expanding to include additional propane fuel tanks, converting to diesel fueled generators, or installing a buried powerline to the Crystal Lake power facility (see Figure 4-4). The availability of electricity from a powerline would make it more likely that site include more users, larger facilities, and more antennas on more towers.

If vandalism occurs, the applicant may choose to request permission to install a fence around the facilities.

Construction of a trail is likely on Crystal Mountain. Crystal Mountain has been recommended for designation as part of a Recreation Special Area in the Forest Plan Revision, along with the Blind Slough and Blind River Rapids complex.

## Alternative 2

Crystal Mountain would not be developed as a communication site. There would be no facility or expansion of a facility.



**Figure 4-4. Appearance of Reasonably Foreseeable Development if Crystal Mountain Is Designated**

## Cumulative Effects

### Alternative 1

#### Meeting Communication Needs

Alternative 1 would meet all the communication needs described by the applicant and could expand as necessary to respond to new and developing needs. However, any development beyond the maximum listed in each alternative would require an amendment to the Forest Plan.

## **4 Environmental Consequences**

### **Compatibility with Recreation Use**

Alternative 1 would allow recreation plans to continue as before, including development of a trail. The mountain would probably be used more often, by more people once a trail is provided. At the same time, the nature of recreation would change from solitary experience to a greater likelihood of seeing other hikers. The pipeline access route, across city land, is not favored by Petersburg City Officials, without or without designation of Crystal Mountain. Presumably Snake Ridge Road access route would still be available to people who wanted a more solitary, difficult experience. However, they could still expect to see more hikers, more often, at the summit.

The recreation experience on the summit could change if a diesel generator were installed. Diesel generators are more noisy than propane and have a noticeable diesel smell.

If vandalism occurs, the applicant may be tempted to request permission to install a fence. A fence around the immediate perimeter of the facility might prevent access to the peak itself, depending on the exact location of the facility.

### **Visual Resource**

The view from the Mitkof Highway, Wrangell Narrows, and the Blind Slough area would remain the same. The facility would not be obvious from such distance. The view on approach to the summit would include a more bulky appearance from diesel facilities. A buried powerline could reduce the visual impact by eliminating the need for a series of propane tanks.

If vandalism occurred and a fence were installed, the fence would contribute to the apparent scale of the facility.

### **Impact on Natural Resources**

No cumulative effects on soils and geology are anticipated from the communication facility. Diesel power would require special containment structures to prevent a diesel fuel spill from seeping into the ground or running off over the surface. A diesel generator would displace some vegetation, although probably not as much as the right-of-way for a powerline. Some animals may be displaced from the immediate vicinity of the noisier diesel generator.

### **Cost To Communication Users**

Increased development would mean increased services available throughout the area covered by Crystal Mountain. The cost of the services would remain competitive.

## **Alternative 2**

### **Meeting Communication Needs**

Alternative 2 would leave many communication needs in southeast Alaska unmet, assuming the services would not be provided from another site. While many of the services could be provided from other sites, the coverage would not be as effective from single-site alternatives, and the expense to users would be greater from two-site alternatives.

### **Compatibility with Recreation Use**

Alternative 2 would allow recreation plans to continue as before, including development of a trail. The mountain would probably be used more often, by more people once a trail is provided. At the same time, the nature of recreation would change from solitary experience to a greater likelihood of seeing other hikers. Presumably, the pipeline and Snake Ridge Road access routes would still be available to people who wanted a more solitary, difficult experience. However they could still expect to see more hikers, more often, at the summit.

**Visual Resource**

The visual resource would remain as before for hikers. The views on approach to the summit and from the summit would remain the same.

**Impact on Natural Resources**

No cumulative effects are anticipated on soils and geology.

**Cost to Communication Users**

Since neither Alternative 2A nor Alternative 2B will meet the needs of the applicant in an economical way, it is unlikely that either would be developed. Therefore, there would be no cost to users, as there would be no services.

## **Adverse Environmental Effects Which Cannot Be Avoided**

There is one adverse effect which cannot be avoided if Alternative 1 is selected. The nature of the recreation experience will change for users when approaching and spending time on the summit because they will see the facility. This change will bother some people and others will be indifferent or mildly interested.

## **Irreversible Loss of Resources**

An irreversible loss is a permanent or long-term use of a resource that is not replaceable within a lifetime, including the destruction of a cultural site or consumptive use of minerals. Designation of a communication site is a long term management decision. Once improvements are in place, changing the management direction becomes difficult. If Crystal were designated, the all-natural quality of the experience on the summit would be lost within the reasonably foreseeable future.

## **Irretrievable Commitment of Resources**

An irretrievable commitment is a decision that makes other choices unavailable during the life of the commitment. The decision cannot be retrieved for the time that has already passed, but could be changed in the future. If Crystal Mountain were designated but eventually became obsolete due to advances in communication technology, the all-natural quality of the experience on the summit would be lost only as long as the facility was located on the summit.



# **Chapter 5**

## **List of Preparers**



# List of Preparers

Members of the team responsible for conducting the Crystal Mountain Communication Site Designation EIS are listed alphabetically below:

<b>Delrdre Buschmann</b> <i>Landscape Architect</i>	B. Landscape Architecture 7 years experience
<b>Mary Clemens</b> <i>Forester (Rec/Lands)</i>	B.S. Forest Management 10 years experience
<b>Bob Daniels</b> <i>Wildlife Biologist</i>	B.S. Wildlife Biology 11 years experience
<b>Larry Dunham</b> <i>Civil Engineer</i>	B.S. Civil Engineering 11 years experience
<b>Ron Freeman</b> <i>Recreation Specialist</i>	B.S. Recreation Management 15 years experience
<b>Denny Hildreth</b> <i>Forestry Technician</i>	B.S. Natural Resources (Recreation) 7 years experience
<b>Mark Hummel</b> <i>NEPA Coordinator</i>	B.S. Natural Resources M.S. Resource Policy & Mgmt 4 years experience
<b>Gall Johnejack</b> <i>Hydrologist</i>	B.S. Wildland Watershed Management 6 years experience
<b>Merrily Jones</b> <i>Public Affairs Specialist</i>	B.A. English 14 years experience
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<b>Tom Laurent</b> <i>Civil Engineer</i>	B.S. Civil Engineering 1 year experience
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<b>David Rak</b> <i>Forester (Rec/Lands)</i>	B.S. Resource Management (Forestry) 13 years experience
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# **Chapter 6**

**List of Agencies,  
Organizations, and  
Persons to Whom  
Copies of this EIS  
were Sent**



# **List of Agencies, Organizations, and Persons to Whom Copies of This EIS Were Sent**

The following organizations and individuals are on the mailing list to receive the Draft EIS (the number of copies is in parentheses).

## **Federal Agencies**

Federal Agency Liaison Division, Washington, D.C. (5)  
U.S. Environmental Protection Agency, Seattle (5)  
U.S. Dept of Commerce, NOAA, Nat. Marine Fisheries Service, Juneau (1)  
U.S. Department of Interior (DOI), Washington, D.C. (18)  
U.S. DOI, Fish and Wildlife Service, Juneau (1)  
U.S. DOI, Fish and Wildlife Service, Anchorage (1)  
U.S. Forest Service, Alaska Region Office, Juneau (30)  
U.S. Forest Service, Washington, D.C. (5)  
U.S. Forest Service, Petersburg Ranger District (20)  
U.S. Forest Service, Stikine Area Supervisor's Office (30)  
U.S. Forest Service, Wrangell Ranger District (5)

## **State Agencies**

Alaska Department of Fish and Game, Petersburg (1)  
Alaska Division of Governmental Coordination, Juneau (5)

## **Municipal Departments**

Wrangell Municipal Light & Power (1)

## **Businesses (1 each)**

Communications Unlimited  
Crystal Mountain Communications & Mortronics Electronics  
Engineered Systems Alaska  
ITT Rayonier  
Leslie Cutting Company  
Mitkof Lumber Company  
Pacific Wing Air Charters  
P-Mac  
Pond Reef MediFlight  
Rocky Pass Towing  
Seley Corporation  
Southeast Communications  
Temsco/Pond Reef MediFlite

## **Organizations (1 each)**

Crystal Mountain Club  
Narrows Conservation Coalition  
Southeast Alaska Conservation Council  
Southern Southeast Alaska Regional Aquaculture Association

## **6 List of Agencies Organizations and Persons**

### **Individuals (1 each)**

Dixie M. Baade  
Sandra Baker  
M.D. Bethel  
Tim Chittenden  
Don & Karen Cornelius  
Harold Hewitt  
Byron Painter  
Bev & Michael Reitz  
Paula Rak  
Beverly Richardson  
Ken Thynes  
Ron Ward

# **Chapter 7**

## **Glossary**



# Glossary

## **Cellular**

This is a specialized service provided by commercial communicators which involves a mobile radio telephone system. A cell is the area covered by one transmitter/receiver site. Radio signals are automatically picked up by another cell's receiver as the radio telephone transmitter passes from cell area to cell area.

## **Communications Site**

An area of a National Forest designated and approved by the Regional Forester for communications uses. A site may be limited to a single communications facility, but most often encompasses more than one. Each site is identified by name; usually a local prominent landmark such as Bald Communications Site.

## **Communications Facility**

A building, tower, and/or other physical improvement that is built, installed, or established to house and support authorized communications use.

## **Communications Use**

A specified activity within a communications facility.

## **Communications Site Manager**

An entity that is authorized to manage a communications site. Responsible for activities such as permitting and managing tenants.

## **Control Link**

The radio link between two points, say an operator's headquarters and a communication site, capable of remotely monitoring, switching, and otherwise controlling radio equipment.

## **Distance Zones**

Landscape areas denoted by specific distances from the observer:

**Foreground:** The detailed landscape found within 0 to 1/4-1/2 mile from the observer.

**Middleground:** The area located from 1/4-1/2 to 3-5 miles from the viewer.

**Background:** Area located from 3-5 miles to infinity from the observer.

## **FAA**

Federal Aviation Administration

## **FCC**

Federal Communications Commission

### **Frequency**

The number of cycles or events per unit of time. For radio communications frequency is measured in units per second, or hertz.

**Very High Frequency (VHF):** A band of radio frequencies falling between 30 and 300 megacycles per second. Commonly used with low power, handheld radios, and with more powerful radios installed in commercial boats, trucks, homes, and offices. Carries 1 channel per frequency. Line-of-sight contact between two sites is not always required because VHF waves bend slightly.

**Ultrahigh Frequency (UHF):** A band of radio frequencies from 300 to 3000 megacycles per second. Often used to establish control link between operator's headquarters and remote communication site. Carries 1 channel per frequency. UHF waves do not bend as much as VHF. Line-of-sight contact required to establish control link between two sites.

**Microwave Frequency:** A band of radio frequencies from 3000 to 8000 megacycles per second. Capable of carrying many channels per frequency. Waves do not bend -- line-of-site contact required between two sites.

### ***Irrecoverable Commitment***

The use of a resource that is lost because of a choice that is made. It represents opportunities foregone for the period of time that another resource cannot be used.

### ***Irreversible Commitment***

Commitment of resources that are renewable only over a long period of time, such as soil productivity, or to nonrenewable resources, such as cultural resources or minerals.

### ***Line-of-Sight***

Refers to the type of radio contact required between two sites in some radio applications such as microwave. The two points must "see" each other directly because the radio waves cannot bend around obstacles.

**Microwave Frequency:** A band of radio frequencies from 3000 to 8000 megacycles per second. Capable of carrying 6 to 10 channels per frequency. Waves do not bend -- line-of-site contact required between two sites.

**Microwave, Common Carrier Relay:** This use typically includes long line carriers which relay intrastate and interstate telephone, television, information, and data transmissions using point-to-point microwave networks or systems. These uses are regulated by state public utility commissions and must provide service to any consumer with the ability to pay according to published rate schedules.

**Microwave, Industrial:** This use includes microwave communications equipment not regulated by the state public utility commissions. Users in this group may include pipeline and power companies, railroads, and land resource management agencies or firms.

### ***Mobile Radio, Commercial Communications***

This includes communication equipment of a business which primarily provides communication service to others. This use may be on either a for-profit or not-for-profit basis, and may or may not be regulated by a state public utility commission. The uses require an FCC license. Examples of mobile radio systems in this category are common carrier systems, community repeaters,

### ***NEPA***

National Environmental Policy Act of 1969.

### ***NTIA***

National Telecommunications Information Agency, Boulder, Colorado.

### ***Recreation Opportunity***

A system for planning and managing recreation resources that categorizes recreation opportunities into seven classes.

**Primitive:** A natural environment of fairly large size. Interaction between users is very low and evidence of other users is minimal. The area is managed to be essentially free from evidence of human-induced restrictions and controls.

**Semi-Primitive Motorized:** A natural or natural-appearing environment of moderate to large size. Interaction between users is low but there is often evidence of other users. The area is managed to minimize onsite controls and restrictions. Local roads used for other resource management activities may be present.

**Semi-Primitive Non-Motorized:** A natural or natural-appearing environment of moderate to large size. Concentration of users is low but there is often evidence of other users. The area is managed to minimize onsite controls and restrictions. Use of local roads for recreational purposes is not allowed.

**Roaded Natural:** A natural-appearing environment with moderate evidence of the sights and sounds of humans. Such evidence usually harmonizes with the natural environment. Interaction between users may be moderate to high with evidence of other users prevalent. Motorized use is allowed.

**Roaded Modified:** A natural environment that has been substantially modified particularly by vegetative manipulation. There is strong evidence of roads and/or highways. Frequency of contact is low to moderate.

**Rural:** A natural environment that has been substantially modified by development of structures, vegetative manipulation. Structures are readily apparent and may range from scattered to small dominant clusters. Sights and sounds of humans are readily evident and the interaction between users is often moderate to high.

### ***Sensitivity Levels***

A measure of viewer interest in the scenic qualities of the landscape along a particular travel route. Sensitivity levels are determined based on the importance of the travel route (use levels), and on the type of use the route receives (recreation vs commercial). Three sensitivity levels are used to identify varying levels of use and user concern for the visual environment:

**Level 1:** Highest sensitivity. Identifies areas seen from high-use travel routes and use areas where a majority of Forest visitors have a major concern for scenic quality.

**Level 2:** Average sensitivity. Identifies areas seen from moderate-use travel routes and use areas where a moderate number of Forest visitors have a major concern for scenic qualities.

**Level 3:** Lowest sensitivity. Identifies areas seen from low-use travel routes and use areas where few Forest visitors have a major concern for scenic qualities. Also identifies areas not generally seen from any travel route or use area.

#### **VCU - Value Comparison Unit**

A distinct geographic area that generally encompasses a drainage basin containing one or more large stream systems. Boundaries usually follow easily recognizable watershed divides. These units were established to provide a common set of areas for which resource inventories could be conducted and resource value interpretations made.

#### **Variety Classes:**

A measure of visual diversity within a landscape character type (refer to Visual Character Types, Series No. R10-63, for name, description and location of the Alaska Region's eight landscape character types). There are three variety classes:

**Class A (Distinctive):** Areas where features of the landscape are of unusual or outstanding visual quality. They are usually not common in the character type.

**Class B (Common):** Areas where landscape features display variety to a degree which is common throughout the character type. These landscapes are the benchmark from which distinctive and minimal can be judged.

**Class C (Minimal):** Areas where landscape features display less variety than found normally within the character type.

#### **Visual Quality Objectives (VQO's)**

Measurable standards reflecting five different degrees of landscape alteration based upon a landscape's diversity of natural features and the public's concern for scenic quality. "Inventory" VQO's have not yet undergone trade-off analysis relative to other Forest resources. "Adopted" VQO's reflect analysis involving other resources and become management direction in a selected and approved land management alternative. The five categories of Visual Quality Objectives are:

**Preservation:** Allows only ecological changes. Management activities, except for very low visual impact recreation facilities, are prohibited. This objective applies to specifically classified areas including wilderness.

**Retention:** Provides for management activities which are not visually evident. Activities may only repeat form, line, color, and texture frequently found in the characteristic landscape. Changes in size, amount, pattern, etc., should not be evident.

**Partial Retention:** Management activities may be evident to the viewer, but must remain visually subordinate to the surrounding landscape. Activities may repeat form, line, color, or texture common to the characteristic landscape but changes in their qualities of size, amount, pattern, etc., remain visually subordinate to it.

**Modification:** Management activities may visually dominate the original surrounding landscape but must borrow from naturally established form, line, color and texture. Activities should be visually compatible with the natural surroundings.

**Maximum Modification:** Land management activities may dominate the characteristic landscape. When viewed as foreground or middleground, activities may not appear to completely borrow from naturally established patterns. However, when viewed as background, the visual characteristics must be those of natural occurrences within the surrounding area or character type.



# **Chapter 8**

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# **Appendix A**

## **Recreation**



# Appendix A

## Recreation on Crystal Mountain

The recreation resource will be discussed and displayed using the following concepts and organization. Supply of recreation opportunities will be discussed using the Recreation Opportunity Spectrum (ROS) system, and will incorporate inventories of roadless areas and recreation places. Quality of recreation opportunities will be examined through discussions on accessibility and the values provided. Demand will be examined looking at present and potential users. The consequences of implementing alternatives will be analyzed by looking at changes in supply, quality, and implications for demand, such as substitutes and compatibility.

## Affected Environment

### Recreation Supply

The entire Forest was inventoried using the ROS concept. In a nutshell, the ROS system identifies a continuum of recreation opportunities, from urban to primitive. Certain recreation activities are preferred in certain settings, and the ROS inventory identifies which areas inherently provide for those activities. Since not all area is realistically available for certain activities given logistical, access, and amenity needs, the recreation place concept was created, based on research done in southeast Alaska. Recreation places identify those settings which contain an attractor or amenity, and which receive known recreation use. ROS can be viewed as a landscape approach to inventory, while recreation places can be viewed as the site approach to inventory. The Tongass roadless inventory in the Analysis of the Management Situation (AMS) is also used to identify alternative opportunities and values.

The Crystal Mountain area is part of a larger roadless area identified as "Crystal" in the AMS. The roadless area is identified as having 19,293 acres in a roadless condition, almost twice the size of the next biggest roadless area on Mitkof Island, which is "East Mitkof" (10,250 acres). Both areas have pending state land selections within them. The ROS setting for the Crystal Mountain area is inventoried as semi-primitive non-motorized (SPNM), the largest core of any of the primitive or semi-primitive classifications on Mitkof Island.

The actual mountain of Crystal Peak is inventoried as a recreation place (#21006.02). The peak rises to a height of 3,317 feet, over 700 feet above the next highest point on Mitkof Island. This place is within the SPNM setting, and lists the primary activities as hiking and viewing scenery. Skiing is also a known use of the area in the late winter and spring time. A companion recreation place is inventoried just to the east (#21006.01), and incorporates the informal trailhead area on the Snake Ridge road (#40006). This site is within the Roaded Modified (RM) setting classification, and lists hiking and 4X4 driving as the principle activities.

# A Appendix

## Recreation Quality

One of the primary values in identifying recreation places is their accessibility. Because of the rugged, remote, and maritime nature of the forest, recreation places often manifest themselves based on the degree of access. Thus recreation places accessible by a road system, such as Mitkof Island, are generally more valuable in providing recreation opportunities to a greater segment of the population. This can be refined even further by the relative accessibility within Mitkof Island. The Crystal Mountain area is easily accessible by vehicle, and the peak is approached on foot by two informal routes. The Mitkof Highway provides paved access to the Crystal Lake hatchery site, which is a known jumping off point for recreationists using the pipeline route to access the ridgeline. This access is available year around. The Snake Ridge Road provides access for high clearance vehicles on the east flank of Crystal Ridge, to an elevation of around 900 feet, and provides for a convenient and quicker access to the ridgeline than the hatchery site. However access is limited to the summer months.

The other primary values are more difficult to quantify, but are part of the recreation experience, which is unique to each individual. Collectively, several values seem to surface repeatedly for the Crystal Mountain recreation place. They can be summed up in the following:

- Remoteness and solitude - Many people have commented on the perceptions of remoteness and the relative degree of solitude the area provides for individuals. There are many obvious examples of areas in southeast Alaska which provide this to a much greater degree. However relative to Mitkof Island, this area does provide a fair degree of remoteness and solitude greater than others on the island. This is related to the fact the area is part of the largest roadless area on Mitkof Island.
- Scenery and esthetics - The views from the summit and ridgeline are outstanding. In addition to the views, the visitor travels through a variety of natural settings, which include forest, muskeg, rock (and often snow and ice), and alpine. This array of settings adds an element of diversity to the recreation experience. This variety is worth the effort for many, and the view from the top is an additional reward.
- Challenge and accomplishment - There is a certain inherent challenge in attaining the summit of any peak one sets out on. The degree of challenge is often altered by the individual to achieve one's objective. For instance, some peaks or routes chosen may have a higher degree of technical knowledge for accomplishments, or time may be the criteria in which to test one's mettle. Crystal Mountain provides a degree of challenge and accomplishment for many individuals, over several seasons and activities.

In an effort to identify values for recreation places, several categories were identified for the inventory. The two recreation places, Crystal Mountain and the trailhead to it, were identified as having high values in several categories. These include facilities investment (or high potential for), home range of communities, and importance to tourism. The other categories include important and quality hunting and fishing, and marine recreation. (Another category used included public scoping. However it soon became apparent those recreation places in areas of proposed development received much public comment, as opposed to those not in an area of proposed activity. Thus this was not a good measure of the relative value of one recreation place over another.) In other words these recreation places were recognized for their current use, as well as their potential uses and values, to the local community, tourism industry, and present and potential recreationists.

**Recreation Demand** Use estimates for Crystal Mountain, which includes use of the ridgeline as well as the summit, range from 0-250 visits per year. No comprehensive information is available. After talking with numerous sources, which include internal and external, and the hatchery manager, a range of 50 - 100 seems fairly realistic. Most use occurs in the spring and summer. The area is known to be used in the spring for skiing activities, particularly once road access is shortened by snow melt in lower elevations. Summertime hiking is the primary activity, with most trips likely to be day outings; however, some overnight use is known to occur.

Existing and potential use of the area was brought out during the recent scoping effort and results for the Petersburg Ranger District Recreation Plan. Hiking opportunities to alpine settings in the generic sense was rated high by many of the communities. Crystal Mountain was identified as a location to meet that opportunity, and ranked sixth out of two hundred projects. Internally, Crystal Mountain was identified several years back by recreation specialists on the area has having high recreation potential. As a result of both efforts, the Crystal Mountain Trail, trailhead, and improvements to the road leading there, were identified for inclusion in the regional capital investment program for recreation. At this time, the trail appears to be funded in FY'92 for planning, and FY'93 for construction.

From a larger perspective, the opportunities for recreation on Crystal Mountain complement other recreation opportunities in the Blind Slough and Ohmer Creek areas, all within a few miles of the Mitkof Highway. These three areas offer a variety of recreation opportunities, unique in the sense they are all within close proximity. One can camp at Ohmer Creek Campground, fish in the morning there, drive 4 miles to Blind Slough and picnic or swim in the afternoon, drive back to the campground and/or drive up the Snake Ridge road to the flank of Crystal Mountain, and hike up to the open ridgeline in the early evening, then return to one's campsite. These opportunities are also possible for visitors staying in town. Recognition of this variety, as well as the diversity of settings within this area, is demonstrated in the identification of this area as a "Special Area" land use allocation, to be considered in draft Forest Plan Revision alternatives.

Demand for these opportunities is primarily by local users. However the local tourism industry and Chamber of Commerce have recognized the segment of potential visitors they wish to attract as being the "adventure traveler." This array of opportunities could easily be packaged and marketed for this segment, with a fairly high degree of success. The opportunities would be self discovery, low cost, easy access, and a large taste of the "Alaskan Experience."

## Recreation Consequences

### Alternative 1

#### Supply

Designation of Crystal Mountain as a communications site is recognized as a somewhat irreversible decision. As communication needs grow in southeast Alaska, so would development of this site.

The roadless character of the area would remain intact because the roadless inventory for the forest did not identify communications sites as incompatible. However, the ROS setting within the recreation place would change. In the short term, modest development would change the setting attributes from the present SPNM, toward the developed end of the spectrum, possibly semi-primitive motorized (SPM), or Roaded Natural (RN), even though there would be no roads. Ultimately development will result in a shift to Roaded Modified (RM). At this point the level of development from an ROS perspective might not make much difference. In other words once this threshold is reached, additional development, such as additional buildings, might not affect the setting any further.

# A Appendix

The recreation places would remain, as would the associated activities of hiking, viewing scenery, and skiing. Generally once the ROS setting has changed toward the urban end of the spectrum, so will user expectations. These include additional tolerance of sights and sounds of other visitors, nearby management activities, and the presence of regulations and regimentation of visitors.

## Quality

While the recreation places would remain, the quality of the experience would be impacted by changes in the setting to many users of the area. Access would still remain; however, other values would be impacted. Perceptions of remoteness and solitude would diminish, and be eliminated for some. The scenery and esthetic impacts would be unacceptable to many as well.

Opportunities for both of these values would still be present and acceptable to some however. The hike to the ridgeline would still be in a natural setting. As one crossed the ridge to the summit, the development would become more prominent. Views from the summit will still be outstanding; however, the visitor would need to work around the communication development to attain all of them. Solitude might become more of a function of when the area is visited, as well as where one is on the ridge, such as over the shoulder of the ridge or off the beaten path on some side ridge.

Challenge and skill would also be diminished somewhat. The feeling of attaining the summit would be lessened when it was found others had done so previously, as evidenced by high technology equipment. The remoteness factor greatly influences challenge and skill, and as perceptions of remoteness are lost, so would the gratification of testing one's self-reliance.

Opportunities to market the area for the adventure traveler would still be present, but might be geared toward a different market segment to steer away from the "purist" types.

## Demand

Existing use of the area is likely to be maintained, or to increase, given the discussions above about access and focus on the opportunities of the area. However, the segment of visitors to this area is likely to change. To many, the changes to the setting will be intolerable. These folks will either be displaced to other areas which provide the values and amenities they seek, or substitute this activity with another. Other visitors to the area will tolerate or not be impacted by the changes. The hike to Crystal Mountain will still be an exciting experience. For many, the impacts will not outweigh the positive benefits received. These visitors' expectations may already be tempered by the knowledge of communication site development, or other values may surface, such as camaraderie or simply exercise.

Potential trails to the area will have to consider communications site development, and vice versa. Optimum locations for the trail, and the summit as a destination may not be available. Potential for vandalism is also a concern, and additional controls, such as designing the trail to avoid the communications site entirely, may need to be considered. Increased managerial presence in the form of rules and regulations may also be necessary. Attaining the alpine ridge as a destination would not be impacted, nor would the difficulty level objective.

### Substitutes

An inventory of substitutes for the Crystal Mountain recreation opportunity was done to identify where some of the existing users might be displaced to. Since access is a key component, the inventory was done for Mitkof Island, and areas immediately to the west which can be accessed by skiff. Other primary criteria were 1) defined mountaintops, 2) presence of alpine, 3) natural settings and views, and 4) opportunities for solitude. The following sites were described, along with their advantages and disadvantages:

- Crystal Roadless Area: Crystal Mountain rises to 3,317 feet, with around 660 acres of alpine. The area is natural, has outstanding views, and provides low to moderate opportunities for solitude. It is part of a 19,293 acre roadless area.
- Other peaks to the south within the roadless area rise to 2,730', 2,690', and 2,648'. None of these peaks contain alpine. They are in natural settings with few views due to timber. They provide low to moderate opportunities for solitude. No or little use of these areas occurs. Access is difficult due to thick coniferous forest.
- North Mitkof Area: This roadless area consists of 5,876 acres, and contains three peaks of 2,590', 2,515', and 2,400'. Around 40 acres of alpine is identified among the highest two peaks. The natural setting is intact and some views are provided. The area provides low-moderate opportunities for solitude. The Ravens Roost Trail provides access to this area, just to the west of these peaks.
- Manzanita: This roadless area consists of 7,850 acres, with no identified alpine. The setting is natural, with scattered views from several points. The high points along this ridge system are around 2,500'. Opportunities for solitude are considered low, due to the fragmented nature of this roadless area. Access is furthest from Petersburg, and difficult through thick coniferous forest.
- Petersburg Creek & Duncan Salt Chuck Wilderness: Accessible by skiff, the Petersburg Mountain Trail provides access to Petersburg Mountain, an elevation of 2,500 feet. Alpine settings exist along the ridge to the west, as do other points of around 2,500'. The setting is natural, and good views can be attained. The area provides moderate degrees of solitude.

### Alternative 2: No Action

The no-action alternative on Crystal Mountain would retain the status quo. The roadless area would not be impacted at this time, and the ROS setting would remain as SPNM. Inventoried recreation places would also remain the same. The access, values, and importance of the area to the local community would be unchanged. Use of the area is likely to increase over time, with or without a trail. The recreation planning effort and this study have brought increased attention to the opportunities Crystal Mountain provides. The Snake Ridge Road, which facilitates access to the area, is still being discovered by visitors. Thus a slow but steady increase in use can be expected over the next few years, even without development of a trail. Marketing of this area to non-residents could also increase this use.

# A Appendix

The no-action alternative also leaves open a wide range of trail development opportunities, which have the potential to increase use further. However, it is recognized any potential trail up the mountain would have to deal with logistical concerns such as muskeg soils, steady climbing grades, the open and somewhat fragile nature of the alpine area, and reconstruction of the access road. Current indications for trail objectives from District recreation specialists identify a trail difficulty level of more- to most-difficult, with the open ridgeline as an immediate destination. The summit would also be a destination; however, the trail may change standards to attain this point, depending on site-specific conditions and other objectives. Options also include loop trail potential, either a major loop swinging back to the hatchery/Blind Slough recreation site, or simply a loop along or near the end of the ridgeline, such as at the summit, to bring a sense of ending to the trail.

Over time, other factors will be affecting the Crystal Mountain setting. State land selections to the north and west have the potential for activities and development which may impact what one sees, hears, and feels. Management of National Forest to the south and west have the same potential impacts. Visitor use of the area, with or without a trail, will likely increase the number of social encounters, and possibly the need for management presence. Aircraft overflights and other external factors could increase. These impacts would likely be gradual, and users of the area may adapt over the time they occur.

## Summary and Conclusion

Crystal Mountain provides a unique recreation setting. The combination of roadless area, alpine, easy access, and the highest point on Mitkof Island makes it important in fulfilling the spectrum of opportunities for residents and visitors alike. The potential for increased use of this opportunity has been validated by the public.

It appears designation of Crystal Mountain as a communications site is compatible with recreation use of the area. The existing setting of the area will change, along with some of the values the area provides. This in turn will likely change the segment of recreationists using the area. Those who value solitude, remoteness, and the natural condition of the area will either adapt to the situation or be displaced. Substitutes are available in the area, but none contain the array of values and amenities Crystal Mountain currently provides.

Many existing values and amenities will remain on Crystal Mountain even with designation. Many existing users will either be indifferent to changes communication site designation will bring, or will feel the values and amenities outweigh the changes to the setting created by development. In addition, the attractions the area currently has will continue to attract visitors in the future. Potential trail development in the area will need to consider communications site development and needs, but will not be hindered to a great degree by site designation.

# **Appendix B**

## **Remand Notice**



United States  
Department of  
Agriculture

Forest  
Service

Washington  
Office

14th & Independence SW  
P.O. Box 96090  
Washington, D.C. 20090-6090

Reply To: 1570-1 (LMP)

Date: October 29, 1990

CERTIFIED RECEIPT REQUESTED

Ms. Beverly Richardson  
Narrows Conservation Coalition  
P.O. Box 958  
Petersburg, Alaska 99833

Ms. Beverly Reitz  
Crystal Mountain Club  
P.O. Box 1441  
Petersburg, Alaska 99833

RE: Appeal of the Crystal Mountain Environmental Analysis and Decision Notice designation of a communications site on the Petersburg District of the Tongass National Forest (#90-13-00-0230)

Dear Ms. Richardson and Ms. Reitz:

Enclosed is our decision on your appeal of the Environmental Analysis (EA) and Decision Notice and No Finding of Significant Impact (DN/FONSI) of the communications site designation of Crystal Mountain on the Petersburg District of the Tongass National Forest. Your appeal was filed under appeal regulation 36 CFR 217.

You are representing the Narrows Conservation Coalition and the Crystal Mountain Club.

**DECISION SUMMARY**

On the basis of the information provided, we conclude that the decision to amend the Forest Plan to designate Crystal Mountain a communications site lacks sufficient documentation, and because of this lack of information, we are unable to ascertain the level of environmental impacts. We are therefore remanding the decision to the Regional Forester for additional analysis in compliance with the National Environmental Policy Act (NEPA), and for a new decision document.

This decision focuses on whether designation of the Crystal Mountain site would significantly affect the environment, and whether the EA complies with Forest Service Interim Directive No. 68. Your remaining appeal issues, including a Forest-wide communications site study, will be considered in the additional NEPA analysis. We are requesting that the Regional Forester consider each of the points in your appeal as part of that analysis.

## PROCEDURAL BACKGROUND

On June 6, 1990, Regional Forester Mike Barton signed the Decision Notice and Finding of No Significant Impact. On July 25, 1990, you appealed the decision. As part of your appeal, you requested a stay. The stay was denied in a letter to you dated September 4, 1990.

## ISSUES

You raise the following concerns in your Notice of Appeal (NOA):

1. Whether the decision adequately considers potential cumulative environmental effects in accordance with 40 CFR 1508.7, 1508.8 and 1508.27 (NOA, page 3).
2. Whether viable alternative sites exist (NOA, page 4).
3. Whether designation of Crystal Mountain as a communications site would significantly affect the quality of the human environment (NOA, page 5).
  - a. Whether designation would result in "significant" impacts as defined by 40 CFR 1508.27 B(1) (NOA, page 5).
  - b. Whether designation would result in effects on the quality of the human environment that are likely to be highly controversial (NOA, page 6).
  - c. Whether the EA addressed effects of designation on future recreation use (NOA, page 7).
  - d. Whether the cumulative effects of designation were adequately considered (NOA, page 7).
4. Whether the EA adequately discusses mitigation measures to conclude recreation and visual impacts would not be significant (NOA, page 8).
5. Whether the EA adequately examines the demand for an additional communications site (NOA, page 9).
6. Whether the relative values of the resources have been analyzed and disclosed in accordance with NEPA, Section 102(2)(B) (NOA, page 10).
7. Whether designation of Crystal Mountain as a communications site constitutes a significant amendment to the Tongass Land Management Plan (TLMP) (NOA, page 10).
8. Whether the EA complies with Interim Directive #68 of Forest Service Manual (FSM) 2728 (NOA, page 11).
9. Whether the designation and development of Crystal Mountain as a communications site is compatible with recreational use in the area (NOA, page 12).

**RELIEF REQUESTED:**

As relief you request (NOA, page 13):

1. Crystal Mountain remain free from a communications site designation,
2. An alternative site or combination of sites be chosen if additional sites are found to be necessary, and
3. The alpine area of Crystal Mountain be given permanent protective status such as a Semi-Primitive Recreation prescription in the TLMP Revision.

**ANALYSIS OF ARGUMENTS**

We focused our review on two of the issues you raised:

**ISSUE #3:** Whether the designation of Crystal Mountain as a communications site would significantly affect the quality of the human environment (NOA, page 5). You suggest that this designation would significantly affect the quality of the human environment, and refer to the criteria characterizing "significantly" in 40 CFR 1508.27(b)(4), (6), and (7).

**ISSUE #8:** Whether the EA complies with Interim Directive No. 68, Forest Service Manual Chapter 2728 - Special Uses Administration, Communications, (August 25, 1989) (NOA, page 11).

You note that the Forest Service failed to: (1) prepare a Forest-wide communications site analysis, and (2) address current and future communication needs, site consolidation, and the future development of the site.

**DISCUSSION**

**ISSUE #3:** There is considerable disagreement over the significance of the environmental impacts resulting from the proposed action. In the comments received during scoping, Crystal Mountain was identified as a unique recreation site receiving considerable summer and winter use. Many people were concerned about the diminished or lost recreation opportunities which may occur as a result of the proposed action. Both the Recreation Specialist's report and the EA fail to respond to these concerns. The EA's general discussion of the designation of Crystal Mountain lacks the detail and quantitative analysis necessary to evaluate the significance of the environmental impacts as required in 40 CFR 1508.27 (1989).

In addition, the EA fails to adequately analyze the cumulative impacts of the proposed action. For example, the physical and economic advantages of future development of Crystal Mountain suggest that it is reasonably foreseeable that increased use of the site will occur. Also, the impact of the proposed action upon future recreation use is not fully addressed. The analysis of these and other cumulative impacts is not adequately developed in the EA. Thus, there is no basis for evaluating their significance as required by 40 CFR 1508.7, and 1508.25(a)(2) (1989).

ISSUE #8: The EA does not contain or refer to the Forest-wide communications site analysis recommended by the Interim Directive No. 68 (which was reissued as Interim Directive No. 90-3 on October 4, 1990). While alternative sites for this specific proposal were examined, there is no analysis of their relationship to the 12 currently designated sites on the Stikine Area of the Tongass. The EA does not present information on future expansion at the Crystal Mountain site, a reasonably foreseeable event given the site's advantages and the Interim Directive's direction to maximize the efficient use of sites.

A Forest-wide communications site analysis is necessary to provide information about past, present, and future actions to which the proposal may be connected, and about actions with which it may create cumulative impacts.

#### DECISION

The decision to amend the TLMP to designate Crystal Mountain as a communications site lacks sufficient documentation, and because of this lack of information, we are unable to ascertain the level of environmental impacts. We are therefore remanding the decision to the Regional Forester for additional NEPA analysis, and for a new decision document.

This decision is the final determination of the Department of Agriculture, unless the Secretary, on his own motion, elects to review the decision within 15 days of receipt (36 CFR 217.17).

Sincerely,

/s/ Larry Henson

LARRY HENSON  
Reviewing Officer for the Chief



